Textile World

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CONTENTS MAY, 1935

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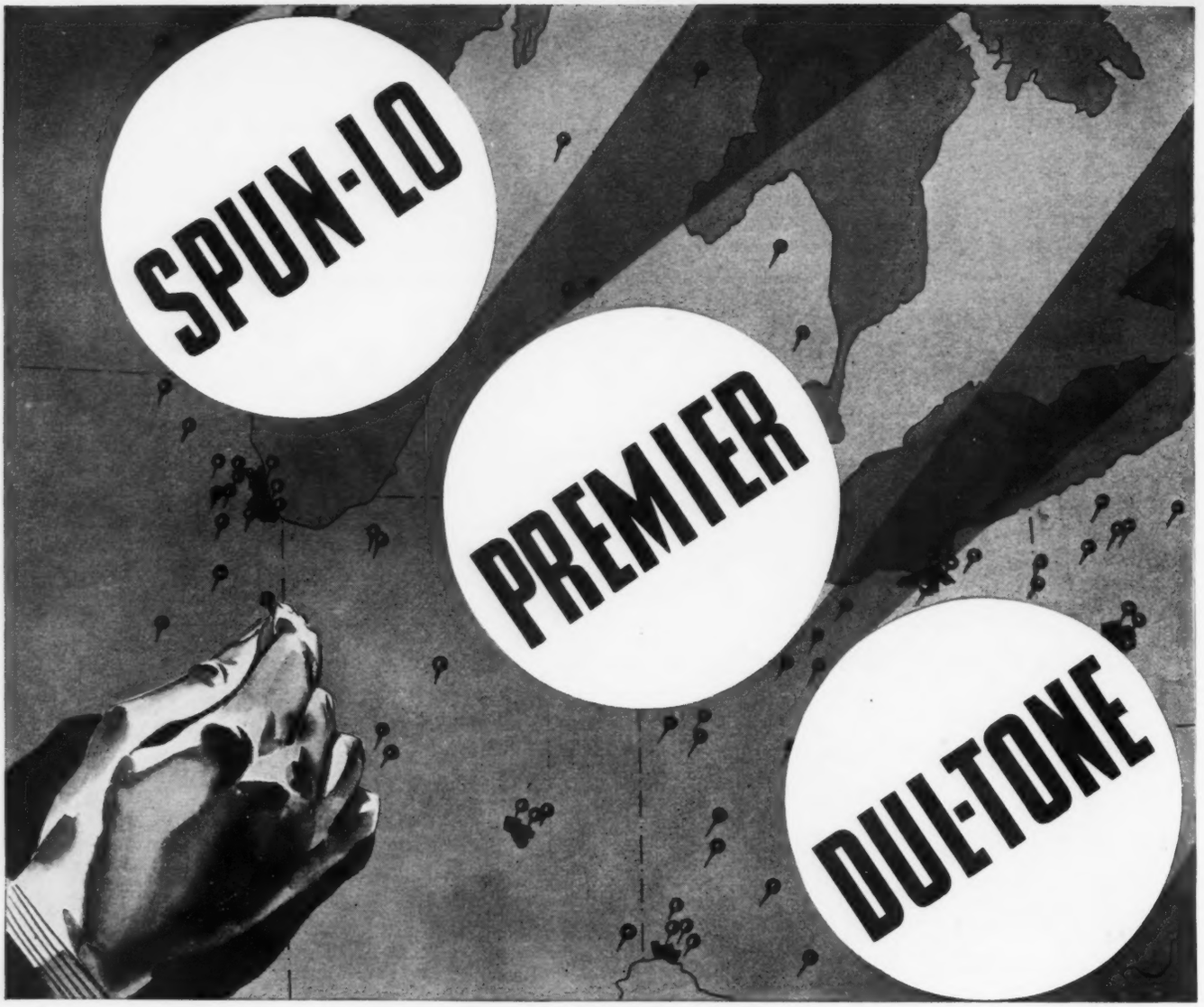

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Textile World

May, 1935

Editor: DOUGLAS G. WOOLF

A FIGHT AND TWO DANGERS

"WE ARE not in a crisis. We have merely come to the time to fight."

The above are the concluding sentences of our March editorial.

We must admit that we did not then foresee how much of a "fight" we would have within two months. All who recognize fighting spirit as a hopeful sign in an industry—and we are one of those—must rejoice at the militant attitude displayed in textile manufacture today. It is in sharp contrast to the apathy which too often exists.

In the same editorial in March, we stated: "There are at least three things which the (cotton textile) industry should fight for: (1) Authority to curtail production *immediately* when, as and if needed. (2) Exercise of NRA provisions to protect domestic industry against low-cost foreign goods. (3) Relief from the processing tax monstrosity.

Progress can be reported on all three. The fight for No. 1 has been won, as we noted on this page last month. No. 2 is being given careful consideration in the various conferences and investigations now taking place in Washington. As to No. 3, the fight against the processing tax has reached heroic proportions. Whether it is possible to do anything against the blind fanaticism of the AAA is an open question. The industry drew first blood, however, when it made Secretary Wallace mad; he lost considerable stature through his speech in Maine.

Altogether, the last month has been an encouraging one to us.

■

We should like to inject a note of caution, however. We can see two dangers to be avoided in the otherwise admirable crusade for textile justice. One is the intrusion of politics. Shrewd politicians, both Democratic and Republican, and on both sides of the Administration fence, are picking up this "textile crisis" issue as hot stuff. Such use threatens to make the real interests of textile manufacturers a football. This political manipulation is hard to check; it behooves all friends of the industry to be on the watch for it.

The other danger is exaggeration. Overenthusiastic partisans let their imaginations run away with them until, by now, some of the statements we hear would make it appear that the processing tax and Japanese competition are responsible for all the ills of mankind, including the Dutch elm disease and the condition of schools in Twin City, New Mexico.

Such over-statement not only weakens the industry's case. It does something much more serious than that; it builds up false hopes which will later be frustrated, to the sad disappointment of the industry and its workers.

■

We have expressed our convictions on the processing tax and on Japanese competition—and have urged a fight on both. Solution of either or both these problems will help very materially. But let us not delude ourselves into the belief that everything will then be fine and dandy in the textile industry. It won't. We shall still have a fundamental textile problem—one which has grown up over a period of years, and one on which, fortunately, we have been making real, even if slow, progress during recent years. There will still be the need for balancing production to demand, for checking suicidal price policies, for keeping plant and equipment up-to-date, and for making a marketable product and merchandising it intelligently.

Lest we forget!

The Editor Says:

IF we were a wool manufacturer, or a silk manufacturer, or a rayon manufacturer, or a knitter of hosiery or underwear, we'd feel pretty sore about the cotton division of the textile industry. To the general public, cotton is all there is to textiles, and a cotton "crisis" is a textile "crisis."

Let's turn the spot-light on some of these other branches. Wool has been going along pretty well; men's wear particularly has been booming. One news-item last month was to the effect that the American Woolen Co. was operating at slightly better than 90%, the rate of activity being close to the peak achieved in 1933. In silk and rayon goods, the season has not been very good, but there has been no "crisis." The knitting industry has been fairly good, so far as hosiery and underwear are concerned, and remarkably good in outerwear. In fact, encouraging items even about cotton mills have been coming along lately.

Our mill correspondents report mills starting up, or adding workers, or—more important still—placing contracts for plant improvements. More than a score of the latter type of item came over our desk last month.

We have no illusions about the difficulties still facing textile manufacturers—but at the same time, the industry has not gone completely to the dogs.

■

The Wage Differential

NO one of the many textile subjects now enjoying public debate is as "loaded" as that of the wage differential in the codes. It is "loaded" because it carries the germ of a North-South antagonism which is neither shared nor desired by the sound thinkers in both sections, but which, if allowed to develop, could do more to ruin the textile industry than any one thing we can think of. And that's a pretty strong statement; our readers know what we think of some of the other current menaces.

Consequently, even though one's instinct is to leave this phase of the problem alone—especially if one is interested in both sections equally—it must be faced frankly.

The $1.00 differential in minimum wages, in favor of the South, was put into the Cotton Textile Code—Code No. 1—after public hearings and exhaustive investigation. It was one of the principal subjects discussed at the famous "gold-fish bowl" hearing on the code. The limitation of the differential to only $1.00 was regarded by most observers as a "victory" for the North. Our more frank New England friends admitted that they shared this view. Many of our Southern friends were bitter in their condemnation of their representatives who had "sold them out." This attitude was based on the claim that even the lowest-cost mill villages represented a greater amount of wage-equivalent than $1.00 per week.

So much for that.

Now it is claimed by certain individuals and certain sections in New England that this wage differential is ruining the industry there.

This fact should be remembered: It was not—nor is it now—the function of NRA to change old competitive relationships, except where those relationships were based on exploitation of labor. In other words, if one section previously had certain advantages over another and can now continue to have them while at the same time observing the minimum-wage and maximum-hour clauses of the codes, it presumably is entitled to them.

Recently, the discussion has switched to the subject of differentials between various occupational groupings rather than merely the differential in the minimum wage. Now, this question of establishing several minima for the various occupational classes within a mill is a big subject—and one on which "there are two schools of thought," as the saying goes. In any event, it would seem the sensible thing to remove this question of wage differentials from the war-zone, and confine that zone to processing-tax, foreign competition, and other subjects on which the industry has such a clear-cut case. The differentials could then be left for settlement through the same orderly procedure which has been responsible for all our code provisions to date. And, opinions to the contrary notwithstanding, if we were a manufacturer in either section, we'd be perfectly willing to take a chance on the results of that procedure.

Work Assignment Report

***A PERMANENT** tribunal for settlement of work assignment problems was recommended in the report of the Cotton Textile Work Assignment Board, submitted to the President May 12. Submission of the wool and silk reports was due shortly.*

The board concluded that (1) the great majority of employers have not set up machine assignments that create excessive work loads; (2) it would be unwise and impracticable to set up standards, expressed in number of machines to be tended; (3) because of the many variables, the only way a fair assignment can be determined is by study in the mill concerned; (4) it would be unwise to set up regional boards to handle this general problem; (5) it would be unwise and unjust to require a mill to secure authorization to increase machine assignments, or to wait any period of time subsequent to filing a petition. Such requirement, the board feels, would discourage the purchase and use of improved and more efficient machinery.

The report is a complete substantiation of the stand taken by the industry, and by this publication, on the work assignment problem. In this writer's opinion, the suggested procedure would materially improve employer-employee relations in this industry—Editor.

■

The Japanese Menace

IT is correct that, despite the sharp increase in imports of cotton goods from Japan during recent months, the actual quantity is still small, and represents only an insignificant percentage of our domestic production.

However, the Japanese question cannot be dismissed so easily. There are at least two serious ramifications: 1. The effect of these cheap importations is detrimental to the price-structure of the market. 2. If the *rate* of increase continued to gain as it has recently, it would not be long before the quantity imported would be a most serious factor.

Consequently, we believe that the industry is acting wisely in taking steps *now* to avert a danger before it is too late.

There should be no question of antagonism between the United States and Japan involved in this. We believe that the majority of the people in this country want

to continue to protect the living standards of American workers against competition from lower standards elsewhere. Irrespective of theoretical free-trade considerations, the fact remains that we can help the rest of the world none, and do serious harm to ourselves, by dropping our living standards to meet those of other nations.

If this is granted, the answer seems to be action under Section 3(e) of NIRA which was designed to protect coded industries from this menace—or else action under some such modified procedure as that recommended by the Consumers' Goods Industries Committee.

Finally, the mere fact that Japan is a large purchaser of our raw cotton, is no reason why we should penalize textile workers in order to avoid offending a good customer.

■

The Export Bounty Plan

LAST month we presented an article by Floyd W. Jefferson, outlining and advocating the cotton export bounty plan as offered by Sam Lamport.

Theoretically, we are not in favor of subsidies of this character. But that theory is based upon an assumption of normal economic conditions. The abnormal situation today makes many good old theories obsolete.

The combination of high labor costs under the codes, high American cotton prices due to certain of the AAA provisions, and cotton surplus held by the Government, makes some radical action imperative if cotton mill workers and cotton farmers are to be protected. The bounty plan has the advantage of being a positive step; that is what is needed most right now in the cotton situation.

Unfortunately, we can foresee serious opposition to the plan from various parts of the Administration. But a strenuous effort should be made to convert into action the principle expressed by the American Cotton Manufacturers Association when it urged that "some study be made by the Department of Agriculture to see what can be done to take this cotton out of our warehouses and put people to work in our mills and send this cloth to our old customers across the water at a price that they can and are willing to pay."

■

Dorr on the NRA

IN the midst of all the negative thinking that has been going on in the nation recently, an occasional constructive statement is like a breath of fresh air. Such a one was the address by Goldthwaite H. Dorr, president of the Cotton-Textile Institute, before the Chamber of Commerce of the U. S. in Washington, May 1.

Instead of "new devices pulled out of a hat," NRA codes should be regarded as the culmination of industry's 25-year struggle toward sound competitive conditions, he said. Prior to NRA, he held, every industry had its own theory of a panacea for its individual problems, but intelligent collective action was thwarted either by varying conceptions of policy on the part of the Department of Justice or by the inability of the Federal Trade Commission, within the limitations of its Act, to meet modern competitive conditions.

In considering any aspect of the NRA, said Mr. Dorr, is there not danger of taking too near-sighted a view? That, we are afraid, is the attitude of a very large number of people who see only the "ballyhoo, great expectations not realized, absurdities, wearisome struggles with red tape and often a conflict in fundamental viewpoints and policies among those administering the act."

"It is only by an escape from this close-up and the confusion of its detail, that we can form any cool and reasoned judgment," says Mr. Dorr. He has performed a public service in attempting to induce such a judgment among industrialists. And he does it, not as one with a preconceived opinion, but as one who desires calm appraisal and knows that "it is too soon to appraise results."

Quite aside from all political aspects, we need more of this objective type of thinking just now.

Go-to-Meetin' Section

DURING ***the last month, there was held probably the most momentous series of textile conventions and exhibitions ever held within a similiar period. Recognizing their importance, TEXTILE WORLD presents the reports of these events in a special section of this issue, commencing on page 81.)***

■

A Hound for Punishment

ARTHUR WHITESIDE leaves the Washington scene after nearly two years of strenuous NRA activity, and neglect of personal obligations.

We don't know any man who can "take it" better than Mr. Whiteside. He did not even get his dollar a year, but he gave a type of service which would be difficult to match.

The textile industry should be proud of the fact that it was one of its representatives who performed this public service.

■

Adept in Living

NOSTALGIA gripped us as we read the obituary of James Gibson, a pioneer Canadian textile manufacturer, as reported by one of our correspondents:

"James Gibson was 80, and was retired in recent years. He was the sponsor of the skating and hockey rink in Marysville, which was named by his father after the latter's wife, Mary Gibson. James Gibson organized the Gibson cotton mill band, composed of employees of the textile factory, and he supplied the uniforms and instruments for the band. Incidentally, he was the original leader of the organization, he having been adept in music. He organized baseball and hockey teams among the employees of the Gibson cotton mill, and also owned a stable of trotters and pacers raced under the Gibson colors for many years. He was talented in landscape painting and pen and ink sketching, and had a private gallery of his paintings and drawings at his home, within about a mile of the cotton mill."

That breathes the gentler life of a past generation, which we are too young to belong to, but too old to have missed a contact with it, and a yearning for it.

James Gibson, we feel, was not only "adept in music"; he was adept in living too.

"Fight to Finish" on Process Tax Planned by Cotton Mills
JAPANESE TEXTILES PUT UNDER INQUIRY
Wallace Tells Mill Owners to 'Quit Whining'
ROOSEVELT COMBATS REPORTS OF INROADS IN TEXTILES BY JAPAN
Rebellion' of Cotton Interests Speeding New Deal Showdou
CONGRESSMEN SPUR DRIVE TO SOLVE COTTON PROBLEMS
Help Save New England's Textile Industry
SLOAN ASKS TAX RELIEF, JAPAN CURB
WALLACE ATTACK STIRS NEW ENGLAND
AMOSKEAG LOST $1,008,468 IN '34
Front-Page News!
Cotton Crisis Brings Industry Back to Headlines

By Douglas G. Woolf

IF PUBLICITY is what counts, the textile industry has certainly been going places during the last year. First, there was Gorman's synthetic strike—and, just as textile manufacturers seemed to be going back to private life, the cotton textile "crisis" erupted all over the front pages.

And what an eruption! The President, Senators, Representatives, Cabinet members, Governors, Mayors, Chambers of Commerce, Policy Committees, et al, were involved. Newspaper clippings, laid end to end, would easily reach from here to there—and back again.

We want to give our readers something like an orderly arrangement of the events back of those clippings, so that they may have an idea of what has happened during the last month. It is not easy; bringing order out of chaos never is. We shall take those events up under the major headings—and shall attempt to be reportorial, not editorial. Also, we shall have to talk fast in order to get it all in; so we shall adopt the staccato style.

★

Processing Tax: This continues to be feature act. When we left it last month, Secretary Wallace, playing part of the villain, had hissed something about industry trying to "alibi" itself, and indicated it was more probable there would be increase than decrease in the tax. That started things. Goldthwaite Dorr said the industry had "a right and a duty to express its views"; Ernest Hood called the statement a "serious blow"; Dexter Stevens referred to AAA's "utter disregard of consequences"; Lincoln Baylies said it was about time the textile industry "ceased to be No. 1 guinea pig for the New Deal Laboratory."

Things moved fast after that. Wallace then said it was a "ten to one chance the tax would not be increased before Aug. 1"—and Baylies said Wallace's mind "was as changeable as the March weather."

Protests began to accumulate from communities throughout New England; other sections of country joined in. There was even talk of ignoring tax, and forcing Government to collect it. Northern Cotton Mills Policy Committee authorized appointment of special committee to determine "what legal action may be taken, including injunction." Word from White House showed opposition to idea of shifting processing tax from mills to relief fund or elsewhere.

Wallace continued fight. In now-famous Maine speech, he accused manufacturers of "whining" and called their opposition to processing tax "a cloak of false publicity." Spoke extemporaneously because, he said, he left his real speech in bag in rush to train in Boston where cultured New England lady who opposes tax had "got his ear" and delayed him. Northern policy committee retorted that Wallace's remarks further prove that Administration "can't take it."

James Sinclair, president Fall River Cotton Manufacturers Association, said he was in Boston Tea Party mood and "ready to go to jail for refusal to pay the tax." Russell Fisher, secretary National Association of Cotton Manufacturers, pointed out New England paid $31,000,000 in processing taxes and received only $1,000,000 from AAA—and that for Connecticut tobacco growers!

Became increasingly evident that cotton "crisis" was vitally important to Administration program; opposition was making AAA focal point of its attack. But observers thought retreat by Administration from any major part of its cotton program unlikely; New York *Herald Tribune* said: "The Secretary (of Agriculture) is in the unenviable position of the Chinese in the proverb: He who rides a tiger cannot dismount." Same paper detected an "almost frantic note" in Wallace's angry advice to New England textile manufacturers.

Legality of processing tax was made issue in Hoosac Mills case in Boston—regarded as major test; mill ready to carry issue to Supreme Court if necessary.

Southern manufacturers joined militantly with North against tax when W. D. Anderson, retiring president American Cotton Manufacturers, launched attack on Wallace and AAA program at annual convention. (*See page 81.*)

Chester Davis, AAA administrator, said textile industry's difficulties were "due entirely to causes other than the tax." Converters, in response to questionnaire from their association, showed two to one preference for retaining processing tax. Even Francis Gorman chimed in with remark that wages, not processing tax or Japanese competition, represent real textile problem.

Wallace said mind was still open on compensating tax on silk and rayon.

And so the merry little fight went on.

★

Japanese Competition: Some people are discreet, and call it plain "foreign competition" but disguise is too thin. Anyway, it's cotton industry's No. 2 target.

At risk of spoiling our story, we'll give the "ending" first: President Roosevelt, on April 17, announced Federal Tariff Commission was ordered to conduct investigation into importations of bleached cotton cloth to determine whether they were rendering ineffective or seriously endangering maintenance of textile code. Action was result of long series of protests to NIRB and other bodies.

Senate heard about it from Senator Metcalf and Senator Walsh. Latter introduced into *Record* letters, and statistics, from Ray Bell, president Association of Cotton Textile Merchants of New York.

Early in April, NRA announced investigation of complaints against increasing imports of bleached cotton goods, cotton fish-netting, wool knit and worsted gloves.

Textile Square-Club luncheon, in New York, heard protests against "Japanese invasion" of domestic cotton goods market. Thresher's department store, in Boston, advertised: "We Do Not Sell Any Japanese Cottons." Harry Bailey, president Wellington Sears Co., tried to set New York *Times* straight. Wrote: "Having lost our export business (to Japan) must we also remain inarticulate while Japan invades our domestic markets?"

Rep. Bachrach introduced bill into House (HR7478) to impose an excise tax on imported manufactures of cotton. Few days later, Rep. Treadway introduced bill (HR7568) to impose minimum specific duties on certain cotton cloths.

J. E. Sirrine, Greenville textile engineer, told Southern Textile Association a practical embargo would help against foreign competition which he described as "now almost insurmountable."

President first remarked that Japanese textile imports have been at rate of only seven-tenths of 10% of American production; and added, if they should go up materially, that would be a different story and a bridge to be crossed when we come to it. Later, however, he ordered FTC investigation as noted above. Northern Policy Committee welcomed this news, saying FTC would produce factual corroboration of statements made by cotton mill men.

Speakers at A.C.M.A. convention, Augusta, warned against inroads made by Japanese imports. Department of Commerce announced that 68% of cotton cloth imported during first quarter this year came from Japan.

But not all contributions on this subject were so restrained. For example, a news photo service, offering us series of pictures on "U. S. Unemployment—Made in Japan," writes: "One picture in this series shows ten hungry mouths to feed in a New England town after a textile mill was closed down." We steeled our heart against buying a picture of ten hungry mouths.

★

Wage Differentials: Considerably down the scale in order of importance, but ranking high as potential trouble-breeder, is question of differential between northern and southern wages. However, increasing restraint has been exercised by both sides, with result that there is today far less danger of open break between the two sections than there was month or two ago. Consequently, there is less to report on this than on processing taxes and imports.

In middle of last month, Northern Policy Committee adopted resolution authorizing appointment of committee to determine what steps should be taken to bring about equalization of wages throughout whole cotton textile industry "which is vital to the industry and hundreds of thousands of citizens and the communities in which they live."

Rhode Island Legislature, claiming *average* wage differential in North is $2.55 greater than in South, requested President to determine why, and what could be done toward equalization.

J. E. Sirrine, appearing before special Cabinet Committee in Washington, gave South's point of view, citing R. E. Loper study and concluding that "existing differential does not provide the northern mill worker with as high wage measures, in terms of living costs, as it does the southern worker."

As noted elsewhere, discussion of this subject has veered lately from differential between minimum wages to that between various occupational groups.

★

The Cabinet Committee: There you have the chief elements in the drama: processing taxes, Japanese imports, wage differentials, plus a lot of minor characters. The plot now begins to thicken. President appoints Cabinet Committee composed of Secretaries Roper (chairman), Hull, Wallace and Perkins to study textile situation; to take steps to relieve present emergency and make long-term plans. In turn, a sub-committee to conduct fact-finding investigation is appointed comprising John Dickinson, Assistant Secretary of Commerce, chairman; Isador Lubin, of Bureau of Labor Statistics; Paul Porter, of AAA; Alvin Hansen, State Department.

Conferences started Apr. 29 and on successive days, delegations from Maine, Rhode Island, Massachusetts, Connecticut, New Hampshire, and representatives of American Cotton Manufacturers Association, Cotton Textile Code Authority, Cotton-Textile Institute, New England Council and other organizations were heard. To surprise of some observers, who expected brass-bands and all the fixings, meetings were closed. Press release stated committee said troubles are fundamental and study must embrace management, efficiency and other factors. Secretary Hull was quoted as saying troubles had been accumulating since 1922.

On question of keeping plants up to date, Charles Cannon, president Cannon Mills Co., said modernization that has taken place in the industry in last two years was in expectation of business that did not develop. George Sloan said cotton textile industry is most efficiently equipped of any in world; also that more improvements have been made in last two years than since the war, and greater demands made on durable goods industry than from any other group. So much for the Cabinet Committee. But before we leave Washington, let us suggest that any one who wants to learn all about textile industry —and then some—is referred to *Congressional Record* for last two months.

★

Miscellany: The export bounty plan, outlined in these columns last month, has been given more consid-

eration than was expected probable. Believed to have a chance. . . . Henry P. Kendall, chairman Business Advisory and Planning Council, testifying before Senate Committee, read memorandum to President recommending removal of processing tax from cotton mills, but at same time a 10% increase in textile wages. Latter suggestion, retorted Dexter Stevens, would mean more unemployment and more closed mills in New England. . . .

Much of what is called cotton textile crisis is really raw cotton crisis. Effect of AAA policies on cotton exports, for example, becomes hopelessly entangled with cotton import situation, in minds of general public.

Plan for single shift of 48 hours, endorsed by number of manufacturers—particularly in New England, is believed in some quarters to be one answer to textile problem, but also considered as not having a chance at this time, since it would meet opposition from mills (particularly in South) with two-shift villages, and from organized labor. . . .

For further "crisis" information, we refer you to your corner "movie." In one news-reel last month, Governor Curley, Representative Edith Rogers, and textile worker appeared in symposium, all pleading same cause. That ought to be worth a quarter of anybody's money.

★

Addenda: Since writing above, we went to Washington to get last-minute check-up. Found there a sympathetic, not antagonistic, attitude toward the industry—but also doubt as to what could be done about it all. Best bets on outcome seem to be: (1) No basic change in processing tax, though possibly some in time of payment. (2) Probability of something being done to tighten barriers against Japanese goods; also possibly some "gentlemen's agreement" with Japan limiting their exports. (3) Better chance for export bounty plan than would have been thought possible month ago; about 50-50 bet now. (4) No action on North-South differential. (5) Good chance of compensatory duties on rayon and silk.

All this without guarantee; events move fast in Washington nowadays. We refer you to Washington letter (below) for analysis by a far more skilled Washington observer.

Little Hope of Processing-Tax Change

By Paul Wooton

Washington Correspondent, TEXTILE WORLD

LITTLE disposition to substitute other levies for the cotton processing tax was indicated by members of the Cabinet Committee during the extended hearings held in Washington early this month. There was no lack of appreciation that the troubles of the industry are serious but there was very evident doubt within the committee that the processing tax is a major factor in the situation. There was more disposition to attribute most difficulties to other causes.

While the hearings were not open to the public or the press, most of the arguments made to the committee were given out and practically everything that transpired became generally known. Although practically all of the arguments presented have been made many times before, the hearing did have the effect of acquainting the members of the committee with the problems with which the industry is wrestling and brought home to them forcefully the need for action. It was apparent, however, that the committee feels that restoration of national income to normal levels will do more for the industry than anything else.

That conclusion apparently is based on the assumption that textiles are losing out in the fight for a portion of the consumer's dollar. Automobiles, electric refrigerators and the movies, the committee seemed to feel, have first call on the consumer's money. In a period when income is impaired the whole tendency is to wear clothing longer, patch the sheets and make the curtains do duty another season.

In that connection note was taken of the tendency during a depression to attach less importance to personal appearances, even among those who could afford more clothing. Evidence of too much prosperity might delay restoration of salary cuts. Another adverse trend is the vogue for cheaper clothing. This is regarded as the same psychology that prompted the use of costume jewelry. General demand, however, was believed certain to pick up in proportion to the amount of recovery attained. The committee did not take kindly the suggestion that a general sales tax be substituted for the processing tax. It was given pause, however, by the forceful way in which George A. Sloan emphasized that sales taxes always exempt food and clothing, but in this instance those necessities of life were singled out for taxes equivalent to sales taxes of 10 to 25%.

The committee seems to feel that the industry needlessly weakens its bargaining position. There is more over-capacity in the automobile industry, one advisor of the committee stated, than there is in the textile industry. The difference is that the automobile manufacturer makes sure there is a market before he produces, while the tendency in the textile industry is to produce on the assumption that there will be a market. If the industry were in a better bargaining position it could pass on the processing tax, it is held.

In that connection the criticism was offered that the textile industry does not do enough with the figures it collects. The industry would not be in such a bad way, it was suggested, if figures were studied so manufacturers could select the best lines and keep off the sour lines. With the rapid style changes unusual alertness is required to avoid being left with unsalable stocks.

The hearing developed a lack of some figures. There is no way of accurately analyzing decline in demand as household and commercial use cannot be determined on many lines. Even the amount of northern capital invested in southern mills could not be established. One southern claim is that New England gets 90% of the profits made by southern mills. Questions as to the amount of American capital that has been invested in Japanese mills or the amount of American capital being used in producing cotton in Brazil and India likewise could not be answered.

With the single exception of the wage differential between the North and the South the industry presented a united front at the hearings. The opinion was expressed that a better working understanding within its own ranks has been reached than ever before.

Those in attendance were not encouraged to expect much help from tariff increases or from the proposed export "tolerance," but knowing the disinclination of the Administration to turn down any request flatly it is expected that some sop will be thrown the industry.

The Fused Collar . . .

Experience is leading to improved construction and finish of acetate filler

By A. A. Wynn

A LITTLE over a year ago the first of the fused or "chemical" starchless- and wiltless-collar shirts were shipped for distribution. In the month following, more than 8000 doz. were made and sold. Close on to a quarter of a million dollars was spent during the balance of 1934 by retailers, in this country and Canada, to put the idea in front of the public. This all came about after due consideration and reflection by manufacturers and retailers, as the fused collar had been tested and adjudged satisfactory as early as the summer of 1933. The idea took hold, due principally to clever publicity and promotion.

The fusing, or bonding, together of two or more cloths by the use of acetate-yarn fillers with proper solvents and under pressure is not a definitely new process, but apparently had never been applied to collar manufacture. This process has been claimed simultaneously by the Trubenizing Process Co. and the Celanese Corp. of America. Thereby "hangs a tale," which is to be ironed out in the United States District Court, the suit being filed by the Trubenizing company against one of the large metropolitan shirt manufacturers who is licensed under patents granted the Celanese corporation.

The process comprises the fabrication of a collar using as the interlining a fabric with a definite amount of acetate yarn in its make-up. After the collar is fabricated and attached to the shirt, it is wetted down with a solvent; and then pressure and heat are applied. The combined action of the solvent, pressure, and heat causes the acetate to become fluid; and it impregnates the warp and filling yarns in the other, all-cotton, layers of collar fabric. The solvent that is used is a mixture of approximately 25% methyl alcohol and 75% acetone. This results in a single layer of fabric, which is washable, being porous, which can be laundered without affecting its original qualities, and which is permanently wiltless.

This eliminates the collar heretofore made with an interlining that, when laundered, would shrink to a greater degree than the other layers of fabric and would subsequently distort and ruin the appearance of the collar. It also eliminates starch, which is, in a degree, costly to apply and elevates a "soft-collar" shirt to a "stiff-collar" shirt.

The minimum quantity of acetate in the interlining cloth is yet to be reached so that the "soft-collar" appearance will be retained without the usual wilting. Some of the interlining cloths are made at the present time with too great a proportion of acetate, resulting in a hard, glassy, celluloid-like collar.

The various problems of manufacture are yet to approach perfection. Machines are being developed rapidly to perform the shaping of the collar and the application of the pressure and heat. Almost every day new problems present themselves, one of the most important of these being the question of color. It was found by sad experience that the solvent, due to its chemical properties, affected colors of certain chemical types, in both roller-printed and yarn-dyed goods, causing them to "bleed" or run—in the case of some colors, almost to disappear completely.

Cross-section of fused-collar fabric. Black dots in upper diagram indicate acetate yarns. Shaded portion of lower diagram indicates diffusion of acetate after fusing process.

These causes and effects will most certainly have to be investigated fully; and if some colors of a negative quality have to be eliminated from cloths to be used for "fusing," others with the proper chemical properties will have to be developed.

With this synopsis of the fused collar story, let us now proceed to the cloth which is used for the interlining. While there are quite a number of variations, the fabric which is pretty much of a standard is as follows: 39 in., 120x80, 50/1 cotton in the warp, 50/1 filling, 300-denier bright acetate in the warp. The warp is drawn two ends of cotton, one end of acetate in one dent and then repeat, which will put 40 ends of acetate and 80 ends of cotton in an inch. The dents per inch and the spread of the cloth in the reed are dependent upon the loom used and the type of reed. The cloth is made for various contractions, and for this reason no rule can be established to govern selection of the reed. After the fusing operation the acetate becomes, as mentioned before, an integral part of all the cloths of which the collar is made, thereby leaving a fabric with a construction of approximately 80x80 for the interlining. The weave of the cloth is plain. The contraction of the acetate yarn in the warp is between 20 and 25%.

The weaving has to be very carefully watched for evenness of weave and cover, and in the main the fabric should be as near perfect as possible. It is finished with a pre-shrinking process and bleached white; and it is being put upon rolls because flat folding has been found to put creases in the piece which are practically impossible to eliminate if they find their way into a collar.

At the present time the principal use of the process is in collar manufacture, with a small amount being used for center plaits and cuffs; but in all probability it will also be applied to stiff- or demi-bosom men's shirts, in which case it will probably do much to popularize this style of shirt. While nothing definite has been accomplished as yet, the same principle could be very readily applied to the molding and permanent stiffening of collars and lapels on men's suits, nurses's and waiters' uniforms, and so on.

Northrop Visits "Child"...

Crosses continent to see modern automatic loom at Greenville Show

By Edwin D. Fowle
Associate Editor, TEXTILE WORLD

IT WAS in 1881 that a 25-year-old machinist left his native Keighley, England, to cut a path for himself in the forest of commercial enterprise which, he had been correctly informed, was flourishing on this side of the Atlantic. He left behind a wife and daughter who were prepared to follow him just as soon as the first strokes of his axe began to make an impression on the obstacles to be encountered.

James H. Northrop was a keen, energetic, and cheerful young man, small in stature (five feet four) with a frank, pleasant face and manner and an exceptional bent for mechanics. He had applied his abilities to the limited routine requirements of an English worsted spinning and twisting mill; but his experience had been sufficient to convince at least himself that he had some potentialities as an inventor.

When Northrop landed in Boston he had a mere two shillings in his pocket—not quite a half-dollar in the strange new currency; but it was not long before he secured a job in Boston and sent for his wife and child to take passage to America. Before they arrived, however, Northrop had lost his job; and when the family was at last reunited, the path to fame and fortune had to be started all over again.

Woonsocket, R. I., had become a wool-manufacturing town of importance; and to that place, in the hope of applying his spinning-mill experience, Northrop took his family. But Woonsocket failed to appreciate the potentialities in this young machinist, and he began to inquire as to where in this corner of New England there might be a firm which could use a man of a mechanically inventive turn of mind. Northrop never had much difficulty in making friends; and one new acquaintance not only recommended that he approach a progressive machinery firm known as Geo. Draper & Sons in Hopedale, Mass., but also lent him money to buy a round-trip ticket to Milford, the nearest railroad point to Hopedale. It was to be a day devoid of eating, since neither the friend nor Northrop suggested that the trip should include any luxuries of that character.

Arrived at Milford, Northrop tramped down the road to Hopedale and greeted a man standing on the steps of the machine shop. "I want to see the superintendent," he said. "I am the superintendent," replied Joseph B. Bancroft.

Northrop said he was looking for a job as a machinist. Bancroft inquired as to his past experience; and, finding little in the substance of the reply to warrant giving any special consideration to this young Englishman, he declared that he had no need for anyone. Northrop bade the superintendent a courteous goodbye and turned on his heel, no doubt with some sinking of the heart, to retrace his steps to Milford.

But some question as to the wisdom of his decision entered Bancroft's mind. Perhaps, as Northrop's figure grew dimmer in the distance, some wraith or guardian angel of the textile industry whispered to Bancroft that he had made a mistake. Possibly some flash of that rare intelligence which he had noted in those bright blue eyes that had just looked up at him refused to leave his thoughts. At any rate, with a shout he called Northrop back. "How much wages do you want?" he asked.

Northrop replied that wages were of no immediate concern to him, that he merely wanted to work for two weeks or so, and that if at the end of the trial period his services seemed to warrant an offer, he would be glad to entertain one. Would $2.25 a week satisfy him? Northrop couldn't think, under the excitement of the moment, what that meant in English money; but it sounded good enough and he accepted. Four days later he began work.

The Draper company had been engaged in the manufacture of a considerable variety of cotton-mill machines and appliances, and Northrop's first invention was the Northrop spooler guide. He showed his ingenuity in the development of several other devices; but, none of them proving commercially practical, he eventually became discouraged and turned to farming as his future vocation.

About this time the Drapers began to investigate the possibility of developing a practical loom which would make a filling change by automatically throwing out one shuttle and inserting another. Alonzo E. Rhoades was assigned the task of designing such a machine. In the fall of 1888, when the Rhoades loom was still in an experimental stage, Northrop came to the realization, as might have been prophesied, that he was not cut out to be a farmer. He returned to the Draper employ and soon became interested in the work Rhoades was doing.

The Rhoades shuttle-changing loom was completed by the end of February, 1889; but Northrop, although he had previously known little about weaving, felt that it would be possible to develop a shuttle-changing device which would operate more satisfactorily and which would cost less money. When, in July, he disclosed to the firm a wooden model of such a device set up at his farm, his idea was quickly adopted. The first looms built on his design were installed in the Seaconnet Mills, at Fall River, in October.

The shuttle-changer was not a complete success; but while Northrop was endeavoring to straighten out some of the troubles which the Seaconnet was experiencing with the machines, he conceived the idea of the bobbin-changing loom for which his name is now famous. He immediately left his work in Fall River in the hands of an assistant and rushed back to Hopedale to see General William F. Draper, who had been evincing a great interest in this relatively new member of his organization. With a few hours to think it over, General Draper told Northrop to go ahead with his new idea and employ all the men and equipment he needed to bring his bobbin-changer to perfection.

Although in a year's time the Northrop bobbin-chang-

ing loom had become a reality, it took five years to bring it to a commercial stage. During this time the inventor was told by many that his idea was absurd and even that he was trying to lift himself by his bootstraps, and he was given a variety of uncomplimentary appellations, including "Crazy Northrop." Even seeing was not believing; and one mill man who had watched a demonstration of the loom in the later stages of its development declared, "I have been a weaver for 35 years, and anyone who tells me that it is possible to take a bobbin out of a shuttle and put in another while the loom is running is a damn fool!"

General Draper, however, never lost faith in Northrop and seldom criticized him for anything but working too hard. His patience was rewarded when, in 1894, the first Northrop looms were installed in the Queen City Mfg. Co.'s mill, at Burlington, Vt. (although they were not announced as generally available to the trade until 1895). The manufacture and sale of the looms were first handled by a separate company—the Northrop Loom Co., chartered in 1892. This was merged with the Draper Co., now the Draper Corp., a few years later.

In 1896 Northrop did something which few men are wise enough to do. He retired at the age of 40. At that time he had many inventions to his credit, including the first practical drop-wire warp stop motion, and he had been granted 95 patents—considerably more than had been obtained by any other of the many able inventors who were members of the Draper organization. He felt that he had done enough—that he had earned the right to a life of rest and recreation; and so, with a guaranteed life salary, he moved in 1897 to California.

There he has remained for 38 years, cognizant of, but not immediately concerned about, the extent to which the automatic loom—his loom—has swept over the globe, changing the character of one of the greatest basic industries and contributing to the raising of living standards and the advance of civilization throughout the world. Human and kindly today, as in his youth, he seems to take greatest pride in having, through his loom, abolished "the kiss of death," the sucking of the end of filling through the shuttle eye by the weaver, a practice which was reputed to cause the dreaded "weaver's consumption," once so prevalent in the mill towns of the North. At the Paris International Exposition of 1900 he received the gold medal in recognition of the greatest advance in textile machinery and had conferred upon him the Legion of Honor.

Few parents can wholly resist the desire to see their babies grown to maturity. For this reason James H. Northrop crossed the continent last month to spend a day and a half at the Southern Textile Exposition in Greenville, S. C. He came to see what changes time had wrought in a mechanical automaton born some 40 years ago. With keen enjoyment he wandered around the weaving exhibits at the show. "They have taken care of my baby," he said. "He has changed, but he is more practical and better than he used to be."

Cose, Greenville, S. C.

JAMES H. NORTHROP, *famous inventor, standing beside a descendant of his automatic loom in the Southern Textile Exposition, Greenville, S. C., April 9.*

We inquired of this kindly, energetic inventor, who is old only in years—he was 79 on May 8 of this year—how he has amused himself in California during his 38 years of isolation from the textile sections of the country.

When he first took up his residence on the western coast, he interested himself to some extent in the equipment used in the California date industry and invented several machines for cleaning, seeding, and shredding dates. But for the most part, particularly in recent years, he has led a life of leisure, spending his winters at Santa Ana with his wife (he has five daughters scattered throughout the country and at present boasts two grandchildren at Stanford University) and spending most of his summers in the trout-fishing areas of the western mountains. He has only one sorrow, he said, and that is that the law permits him to fish but five months of every year.

He radiates a contentment and happiness which would seem to indicate that among his many inventions he numbers a design for living.

Manufacturer, converter, and finisher must work together to re-establish

Profitable Business

By Chester A. Amick

THE peculiar set-up in the cotton textile industry places the combination of the gray goods manufacturer, job finisher, and converter in direct competition with the corporation finisher and with the mill finisher. The corporation finisher should, and probably does, have 100% cooperation between the gray mill and the finishing plant; the manufacturing and processing departments in mills which do their own finishing naturally work in just as close cooperation. It is my belief that continued profitable existence of the independent gray goods mill, the converter, and the job finisher requires the same degree of cooperation.

The main problem of the gray goods mill is to design and produce fabrics which, when finished, will have a sales appeal—not only to the converter, but to the general public. The mill must produce these fabrics economically and must do it quickly. Failure to obtain a good finish may be due to improper design, use of unsuitable raw materials or yarn, mechanical defects in weaving, use of unsuitable sizing materials, and improper finishing procedure.

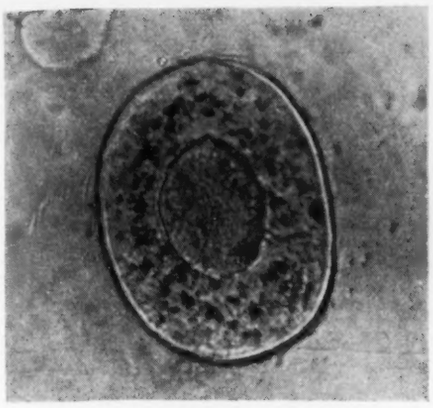
The job finisher today, when he receives a sample of a new fabric to process, usually knows nothing about the past history of the cloth. In order to obtain the best possible results, however, he should know the physical properties of the raw materials used in the fabric; the effect of yarn twist, weave construction, etc., on the final appearance and handle; the nature of the size; and the effect on the raw materials of the various chemicals used in processing. Part of this information could be supplied by the manufacturer of the fabric, with the result that considerable of the time and expense involved in analysis and experimentation would be saved. Likewise certain information held by the finisher would be of assistance to the designer and manufacturer and would prevent the production of fabrics which are bound to be disappointing to all concerned.

An example from the author's experience will illustrate the value of cooperation. During the development of a fabric for making containers to prevent tarnishing of silver, we were running a flannel with a tape selvage. I quickly found that this cloth could not be handled on the range which we were using. The center was so loose that the fabric would not run properly unless considerable tension was applied; the amount of tension required caused the selvages to break. The head of the merchandising department was informed promptly of the difficulty. Within an hour he called back, saying that he had been in touch with the gray mill, that we were to go ahead with the material with the cracked selvages as this could be used for samples, and that on subsequent lots plain selvages would be substituted for the tape selvages which were causing the trouble. Close cooperation between this corporation finisher and the gray mill prevented undue waste and permitted an error in design to be repaired without delay.

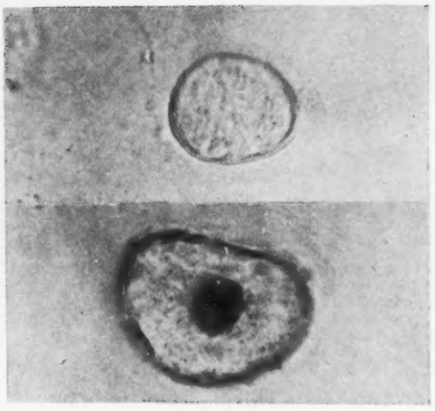
Important as it is for the mill to get out a successful fabric, it is equally important to know the cause of failures. Some years ago 3,000 yd. of roshana crepe came to a finishing plant in which I was working. Our first experiment to determine the proper finishing procedure went askew; likewise the second. After a third unsuccessful attempt, we contacted the gray mill. We then found that the mill, since weaving the lot which we had on hand, had changed from three-ply to four-ply filling to enhance the creping qualities of the fabric and had also increased the twist of the yarn. Knowing that the failure to produce the finish required was due to faulty fabric construction and insufficient twist, we were able finally, at the expenditure of an almost inconceivable amount of time and energy, to get the result wanted. Most of the trouble could have been avoided by closer cooperation between the mill and the finisher when the former first decided to produce this type of fabric; but, at any rate, there was no recurrence of the difficulty on future lots, as the manufacturer had learned what was wrong.

The increased use of rayon in woven fabrics has intensified the problems of the finisher. In the case of such fabrics, the gray mill can cooperate with the finisher to their mutual advantage by making certain that tints used for identifying the yarn are fugitive, by marking ends of pieces only with crayons which give marks readily removable in the boil-off, and by packaging gray goods in such a way as to avoid creases which cannot be removed in finishing. When black oil spots occur, the best procedure is to mark the piece "gray-mill second"; any attempt to remove the spot in the gray mill is likely to result in chafing or fraying of the fabric, uneven dyeing, or spots in the finished cloth. Tight selvages usually cause trouble on the cutting table; loose selvages flap when the goods are on the jig, giving rise to streaky and uneven dyeing; use of insoluble warp sizing compounds may cause uneven creping, dyeing, or finishing; variation in twist of yarn prevents uniform dye penetration; cotton of poor quality dyes slowly, resulting in a two-tone effect with the rayon heavier in shade; mixing rayon from two producers or from two lots made by the same producer is a frequent cause of bar marks; loose ends are dangerous, because they leave holes in the fabric. By guarding against these faults, the manufacturer will aid the finisher, and, at the same time, he himself will benefit.

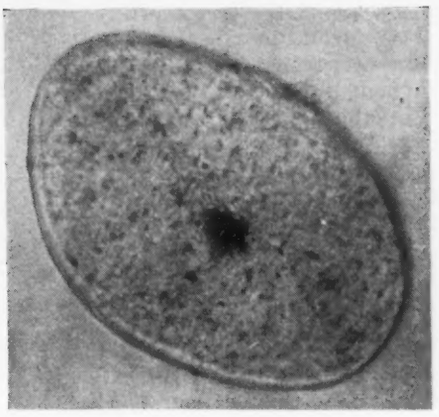
Abstract of a paper delivered at a recent meeting of the Textile Associates Club in Providence, R. I., by Chester A. Amick, chemist and finisher, Glenlyon Print Works, Phillipsdale, R. I.



Cross-section of camel's hair.



Above, cross-section of wool. Below, kempy mohair.



Cross-section of human hair.

The Fiber Candle

By G. H. Hotte

Improved to permit quicker and better preparation of specimens for microscope

◆ *The methods used hitherto for preparing hair specimens for cross-sectional examination under the microscope either have been too slow or have given unsatisfactory results. Both difficulties are overcome by the new technic described in this article. Mr. Hotte is research assistant of textile microscopy, working under Prof. E. R. Schwarz, at Massachusetts Institute of Technology.*

THERE has been need for a method whereby hair specimens suitable for cross-sectioning can be prepared with a minimum loss of time. The lengthy infiltration processes can give critically thin sections, but in these methods time plays an important part and it is sometimes a matter of days before one can begin the actual cutting. Infiltration may also interfere with the internal structure of the hair, which would preclude precise examination. Another method of hair preparation is the straight paraffin technic. One of the defects of this method is that the paraffin does not adhere to the hair properly or support it substantially. A three-step technic of preparation has therefore been developed. Briefly, it consists of coating the hair with a material approximately equal to the fiber in hardness and toughness, and then building up with layers of decreasing hardness.

The success of the new method is due to the fact that, in the actual cutting, the knife progresses from a relatively soft material to one of greater hardness. On reaching the hair, the knife does not distinguish the difference between the layer next to the hair and the hair itself and continues its progress without trouble. The method will prevent cracking of the hair and will give more distinct outlines. Proper application of each medium should be supervised carefully to insure firm adhesion of one layer to another. Collodion properly applied to the hair will prevent trouble that would otherwise creep in later in the preparation.

The hair to be sectioned is given a two- to three-hour wetting-out in ether. This treatment is given primarily to insure removal of the dirt, greases, and waxes that may be present on the hair, since it is desirable that the surface have the ability to take on the coating of collodion. Although the ether has a tendency to soften the hair, it is not used for the purpose of aiding infiltration.

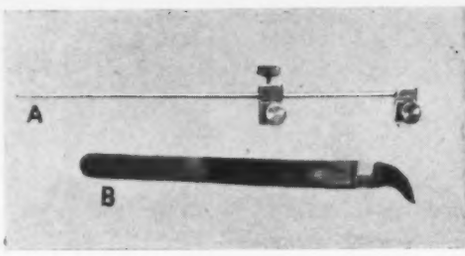
After the ether soak, the hair is transferred into a special collodion solution. (Merck collodion U.S.P.; 245 grains of ether per fluid oz. and 24% absolute alcohol, to which is added 10%, by volume, of medicinal castor oil.) The hair is submerged in this collodion solution for twelve hours, or overnight. The addition of castor oil in varying percentages governs the brittleness of the collodion. The preparation of hair samples depends greatly on the ability to coat the hair first with a material of nearly identical hardness. Upon removing the hair from the solution, a coating of collodion should adhere. This covering layer should be of substantial thickness, so that it may later support the hair, and should be about twice the thickness of the hair diameter.

Slow hardening of the collodion is essential to prevent the formation of air bubbles or traps. A dessicator in which a watch glass of ether is present serves the purpose very well in keeping the air fit for the hardening. If the specimen should be left in the open air, there is little chance that the hardening will be correct. Open air may cause the collodion to become very horny, which is undesirable, and wet air will cause fogging of the coating, which tends to form many air traps. Before continuing to subsequent treatments, it is of major importance that the collodion coating firmly grip the hair.

The specimen is soaked next in a beaker of melted bayberry wax for one-half hour. This wax is hard, and the object is to give a coating of intermediate hardness between the collodion and straight paraffin. The bayberry can be kept melted by means of a water bath, with the temperature control fixed a few degrees above the

melting point of the wax. Bayberry melted in a beaker by a bunsen burner will serve for immediate use.

At the end of one-half hour, the specimen is submerged quickly in iced water. The quick submersion is necessary to prevent crystallization of the wax. The specimen is allowed to remain in the iced water for five or ten minutes to harden the bayberry and to attach it firmly to the collodion coating. It is then dried by passing the fingers over the surface.



(A.) Holder designed to control specimen for treatments before candling; (B.) Compression-type tweezers to hold the collodion-coated specimen while it is being built into a candle.

Improperly applied coating on rabbit hair. Notice the split in the section and that the collodion does not completely surround it.

The final step is the building of a candle, following a method described by Osborne.[1] The specimen is held by a pair of compression-type tweezers and dipped alternately into a beaker of paraffin and a beaker of iced water. The paraffin (embedding wax with a melting point of 56 to 58° C., to which is added 2%, by weight, of bayberry) is kept slightly above its melting point. The sudden chilling given the paraffin forms successive layers, which adhere tightly to the preceding ones. The specimen can remain in the water for about one minute each dip. Drying between successive dips is necessary so that water pockets will not be formed. This may be done by rubbing the fingers gently over the surface. The fingers in turn can be dried on a towel between dips. Wiping with lens paper or some ordinary paper towel tends to cover the surface with lint and does not leave it clean for the succeeding layer of paraffin.

The candle is built to a diameter of approximately $\frac{1}{4}$ in. by this technic. Air traps, which will collapse the specimen in the sectioning, can be avoided in the paraffin dip by a slight lateral agitation. Dips in the paraffin are made quickly, while dips in the iced water should be longer to insure thorough chilling and hardening. Careful chilling prevents the layer just formed from softening unduly during the next dip into the melted paraffin. When the candle has been built to a usable size, the tweezers are removed carefully, so as not to disturb the core of the mount. The candle is then allowed to remain in the water for one hour to solidify the paraffin completely. Seasoning at room temperature for one day proves of value in obtaining good microtome sections. During seasoning the candle is changed from a brittle state to one of a hard, but cuttable, nature.

Good hand sections may be obtained from the candle, although this method of preparation was devised primarily for microtome sectioning. Satisfactory sections fifteen to twenty microns thick can be procured by using a standard rotary microtome.

1. Osborne, G. G. "Micro Analysis of Textile Fibers," Part I; Textile Foundation Report; *Textile Research* (Vol. IV, No. 2, 84-111, 1933).

30-Hour Week

Would be injurious to recovery, editors hold

WIDESPREAD strikes, general labor unrest, loss of business confidence and other effects likely to prove injurious to recovery may be expected as an aftermath if the proposed 30-hour week bill, now sponsored by American Federation of Labor, passes Congress. Such are the conclusions reached in a report just issued by the Committee on Labor Problems, representing 125 of the leading business and industrial publications of the United States.

This committee set out to ascertain what the direct effects of a rigid shortening of the work week would be. Significant among their findings is that labor costs would increase anywhere from 5% to 300%, depending largely upon man-hours required per unit of production. Their findings definitely indicate that just as the work week has been progressively shortened in the past through technological advance, so in the future a gradual further shortening of the hours that labor puts in may be expected. They show clearly, however, that an effort to speed this trend through legislative fiat is almost certain to result in such heavy increases in the price of commodities that production will be curtailed and the long term demand for labor demoralized.

Fear for the American standard of living is expressed. These editors who are intimately familiar with the economics as well as with the mechanics of production show that sound progress in the direction of a shorter work week is contingent upon the increased productivity of individual workmen.

Scarcity of highly skilled workers is shown to exist. With a shorter work week many industries would face a decided drop in efficiency if not an impossible production problem on this account.

Some of the estimates of increased cost of merchandise that would have to follow adoption of the 30-hour week which are included in this report are 36c. in the price of overalls—23c. in the price of workshirts—75c. in the price of work shoes—$3.00 in the price of standard mattresses—$2.00 in the price of metal bedsteads.

The report itself sets up the proponents' arguments for the legislation, the economic factors that must be weighed in passing judgment upon such legislation, takes into consideration case studies made in such industries as coal mining, transportation and automobile production and concludes with a succinct summary of editorial opinion which is based upon contacts with every part of the business front.

Complete copies of this study are available at headquarters of the Associated Business Papers, 330 West 42d Street, New York, at a price of 10c.

Influence of Twist

By Warren P. Seem and Thurman Andrew

On shade and dullness of silk hosiery yarn

SO far as they are attributable to twist, the shade and dullness of a thread are due to the angle assumed by the strands. Therefore the problem of finding the effect of twist on dullness becomes one of determining the angle for various numbers of threads and various numbers of turns. It so happens that the tangent of a small angle has a value very nearly equal to the angle itself, near enough to be used in its place.

The tangent of the angle which a strand of a twisted thread makes with the axis of the thread is the ratio of the circumference of the thread to the length of the thread having one turn. This can be shown by drawing a diagonal on a rectangular piece of paper and then rolling the paper into a cylinder. The diagonal then assumes the corkscrew form of a strand on a twisted thread. That is, Circumference ÷ Length = Tangent *a*.

Since the tangents cannot be interpreted directly as shades, and since the relations among the ratios will not be affected, nothing is lost by using diameters instead of circumferences. Also the diameters can be measured in one unit, the micron; while the length of one turn can be measured in another unit, the inch. The table of diameters given on page 90 of the April issue may then be used; and the ratios become: Diameter/Length of One Turn. But the length L of one turn is 1/Number of Turns per Inch. Our ratio then becomes simply the product of the diameter multiplied by the number of turns per inch.

It is: $D \div (1 \div n) = D \times n \div 1 = D \times n$; or $D \div L = D \div (1 \div n) = Dn$.

The Table of Shades (Table V) based on the angles may then be made directly from the Table of Diameters by multiplying each diameter in turn by the number of turns per inch. For example, 2 threads turned 5 times per inch have a diameter of 84.5. The tangent or shade value will be $5 \times 84.5 = 422.5$. To find the number of turns of threads of various numbers of strands to give a certain shade, it will be necessary to find the same shade number in the body of Table V corresponding to the various numbers of strands and look to the left-hand column to find the number of turns required. According to this table the shade constant S is approximately 3300 for 12 threads twisted 14 turns per inch; 11 threads twisted 15 turns; 10 threads, 17 turns; 9 threads, 18 turns; 8 threads, 20 turns; 7 threads, 22 turns; 6 threads, 25 turns; 5 threads, 30 turns; 4 threads, 35 turns; 3 threads, 45 turns; and 2 threads, 65 turns. These should all have very nearly the same shade so far as shade is determined by twist.

The numbers given above may be multiplied or divided by any constant value, since only the ratios are considered. If any other factor enters into the shade, it must be accounted for by some modification of the formula. The formula is: Tan $(a) = kD/(1/n) = k\,d \times (n/1) = k\,Dn$; or Tan $(a) = k\,D/L = S$; and $L = 1/n$; in which k = constant; D = diameter of twisted threads; n = number of turns per inch; d = diameter of each strand; L = length; and S = shadows.

The relative dullness caused by twist, and shown in Table VI, is compiled from Table V, counting 100 shadows as indicating 1% of dullness. Under close examination, 1% variation in dullness can be seen; but in actual practice it requires a 3% variation.

The tables on diameter, shortening, and dullness are found useful in planning new styles, making comparisons, and estimating costs. Diameter represents the covering factor, sheerness, and visibility of bands and defects. Shortening shows the torsion of yarn and its relative influence on kinking and twisting of hosiery, and the decrease in yardage per pound and its influence on cost. The dullness table is useful in planning new styles and determining costs. As dullness may be produced chemically, as dark colors produce more dullness than light colors of the same twist, and as the yarn may be lustered if knit wet under too high a tension, due allowance must be made for these conditions when they are found to exist. The tables have been practically applied for some time and found dependable.

Effect of twist on the diameter and shortening of silk hosiery yarn was discussed in our April issue.

Table V—Relative shadows S of twisted threads having N strands and n turns per inch, and each strand having a given diameter d.

N	2	3	4	5	6	7	8	9	10	11	12
n 5	422	552	662	755	865	960	1050	1130	1207	1295	1370
10	805	1035	1240	1400	1605	1770	1930	2085	2190	2370	2510
15	1140	1462	1750	1965	2250	2442	2685	2910	3090	3300	3500
20	1440	1840	2190	2460	2810	3090	3360	3640	3870	4140	4380
25	1712	2175	2587	2900	3337	3882	3975	4312	4600	4950	5225
30	1965	2490	2955	3315	3695	4215	4605	5010	5340	5760	6150
35	2170	2782	3292	3735	4270	4770	5250	5725	6160	6685	7175
40	2380	3040	3620	4120	4800	5360	5940	6560	7120		
45	2583	3320	3980	4545	5340	6020	6750				
50	2775	3575	4350	5025	5950						
55	2920	3750	4760	5555							
60	3150	4170	5190								
65	3342	4480									
70	3535	4865									
75	3750										
80	4000										

Table VI—Relative dullness of one-way-twist multiple threads.

	Threads—14-denier basis										
Turns	2	3	4	5	6	7	8	9	10	11	12
5	5	6	7	8	9	10	11	12	12	13	14
10	8	11	13	14	16	18	19	21	22	14	25
15	12	15	18	20	23	25	27	29	31	23	35
20	15	19	22	25	28	31	34	37	39	42	44
25	17	22	26	29	34	39	40	43	46	50	52
30	20	25	30	33	37	42	46	50	54	58	62
35	22	28	33	38	43	48	53	57	62	67	72
40	24	31	36	41	48	54	60	66	71		
45	26	33	40	46	54	60	68				
50	28	36	44	50	63						
55	30	38	48	56							
60	32	42	52								
65	34	45									
70	36	49									

The Knock-Over Curve

Calls for an accurate setting of the full-fashioned needles

By M. C. Miller, M.E.
Manville, R. I.

◆ *This is the concluding article of Mr. Miller's series on full-fashioned hosiery selvages, which constitutes only one section of his larger series on full-fashioned hosiery machines and their operation.* Next he will discuss in a few articles the knitting of hosiery split fabric, a subject having ramifications concerning which there is considerable confusion.*

UPON normal operation of the full-fashioned hosiery machine, with the proper amount of take-up applied, the loops z' shown in Fig. 66 of the November article will slide along the z kinks and finish their formation into loops. There is, however, a subsequent action to take place on the inner curve of the knock-over bits, which will next be described, for performing this function in a more or less positive manner.

The needles now go through their No. 13 and into their No. 14 position, as shown in Fig. 67. Curve w of the knock-over bits effectively assists in the movement of the previously formed needle-loop heads y'' to the back of the needles by their action against the previously formed course of loops. The movement of the needles from the No. 12 to No. 14 position is very fast, in order to get the fullest effect of the gravity action of the fabric take-up mechanism. The momentum of the fabric take-up counterweight is instrumental in giving considerable fabric pull at this time and obviates the need for any great amount of actual weight, which would seriously interfere with the pressing of the needles and formation of the selvage.

The position of the needles in relation to the curve w of the knock-over bits is a very important one, for it must be remembered that while various lengths of loops can be formed on a full-fashioned machine by setting the needles varyingly in a direction to or from the press edge when they are in the positions shown in Figs. 60, 61, and 63, the machines are not provided with an automatic adjustment compensating to their up-and-down position. Hence, while a machine may be properly set in its movement of the needle hooks through the No. 13 and 14 positions for a tight or short-loop fabric, it does not follow that a considerably longer-loop fabric will be properly formed unless the adjustment and setting of the machine in those positions causes the needles to be somewhat flexed toward the take-up when their loops contact with the curve w. In other words, if the needle motion, in relation to the curve w of the knock-over bits, is set for the needles to knit the tightest stitch without flexing, as they move to the No. 13 and 14 positions, it follows that when looser fabric is being knitted, improper movement or clearing of the loop head y'' (Fig. 67) will result.

What is required is that the needles be slightly flexed at the No. 14 position (Fig. 67) when knitting the loosest loops that the machine is intended to produce, being therefore considerably flexed when knitting the tightest loops. The latter, by reason of their tightness, require a greater pressure of the previously knitted loop heads toward the back of the needles, as the needles must then come up through a

*Dates of all preceding articles: May 31, July 26, Oct. 4, and Nov. 29, 1930; March 21, April 25, July 11, Aug. 8, Sept. 19, Nov. 28, and Dec. 26, 1931; Feb. 13, March 26, May 21, July, and Oct., 1932; Jan., April, and Nov., 1933; Feb. 14, June, Aug., and Nov., 1934.

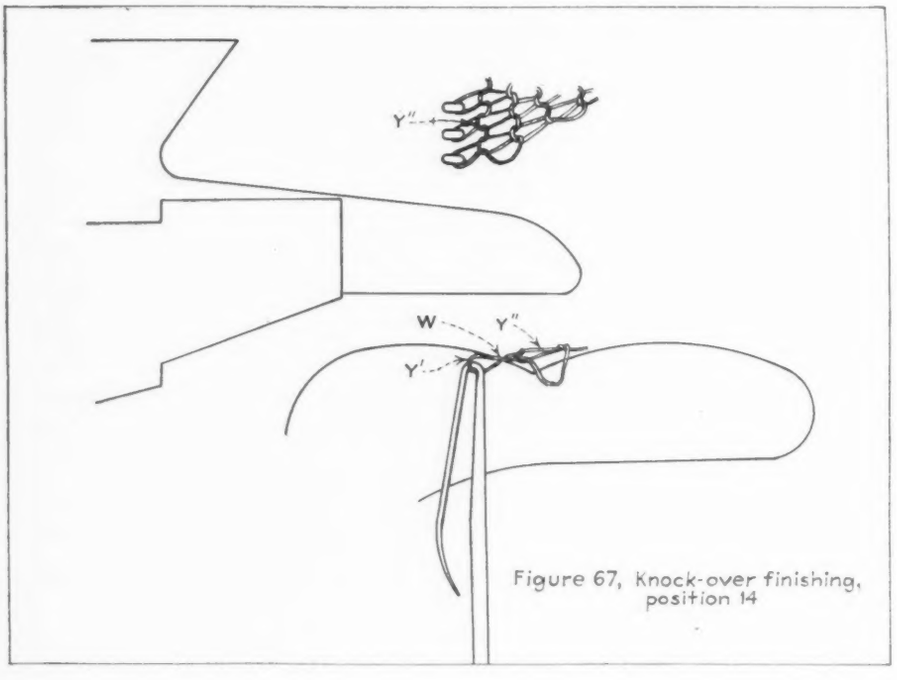


Figure 67, Knock-over finishing, position 14

shorter and tighter loop. Unless the needles are so flexed in tight knitting, considerable difficulty will be encountered in the production of clean looped fabric. If the previously formed loop heads *y''* (Fig. 67) are not with certainty moved and held beyond the back line of the needles, the needles in their upward movement will contact with them and cause them either to rise to some extent or, in some extreme cases, to be pierced by their respective needles before they have properly cleared toward the back. Such piercing will cause two loops instead of one to be on the shanks of the needles when they finish their upward stroke. In any case, even if there is only moderate interference with the upward movement of the needles, a distorted and uneven-appearing fabric will result.

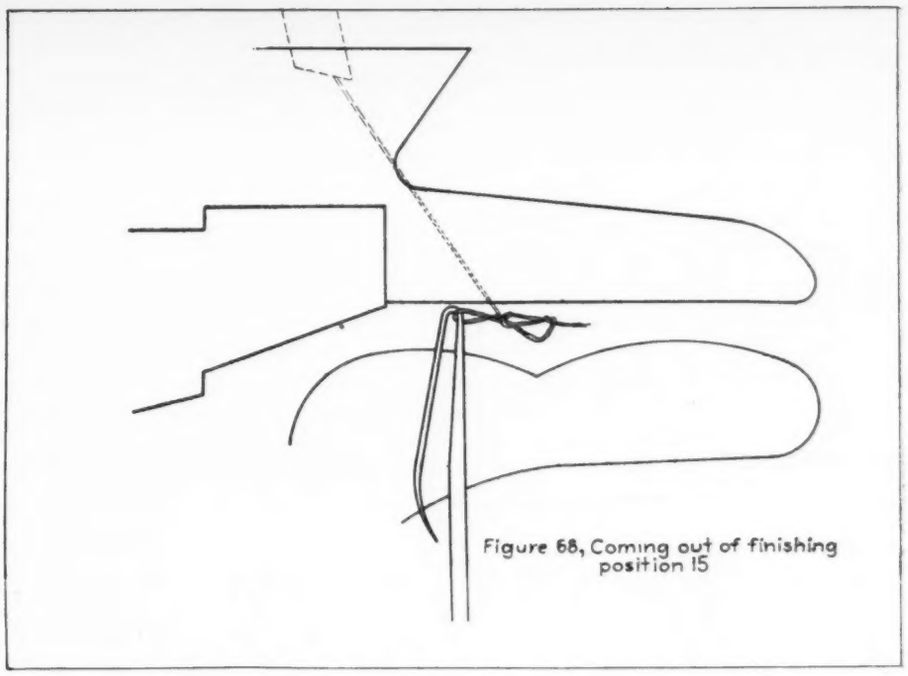


Figure 68, Coming out of finishing position 15

Hence the great importance of this setting of the needles in relation to the curve *w* of the knock-over bits is evident. The adjustment should be made when the machine is knitting the loosest fabric which it is ever intended to knit, and care must be taken that the needles are under a slight flexing during the knitting of such fabric. If, however, this flexing is too great in the knitting of loose fabric, cutting may result when the tightest fabric is knit—or the end needles may be disaligned by the excessive tension imposed, so that they might pass to the wrong side of the sinkers in their subsequent upward movement. If the adjustment is carefully made, a compromise can be established, permitting the production of clean fabric with reasonably tight loops and making certain the proper casting off of long- or loose-looped fabric.

The needles then move into their No. 15 position and slightly beyond, as shown in Fig. 68. The sinkers in the meantime have come forward as shown, so that the throat of the end jack sinker can engage with the yarn between the carrier and the selvage loops, which is possible only if the carrier is outside and the yarn is in a position inside the nose of the outer jack sinker, as shown in Fig. 60*B* (TEXTILE WORLD, June, 1934, page 94). Of course if the yarn were outside the nose of this jack sinker at this time, or the carrier inside, the throat of the sinker, as it is projected, could not engage with the yarn.

The object of having the throat of the end jack sinker engage with the yarn at this and during subsequent movements of the needles is to insure that the head of the needle will pass the yarn toward the press side, as shown in Fig. 69, in order that the yarn, upon reversing, may be laid around the back, outside, and front of the needles, as shown in Fig. 60*A* (June, 1934). Subsequent movement of the needles will bring them somewhat higher than they are shown in Fig. 60 (June, 1934), or to their No. 1 position. The sinkers withdraw some time after the needle hook has moved slightly upward, above the height of the sinker throat or somewhat higher than the position shown in Fig. 69. This withdrawal of the sinkers must take place to permit the yarn carriers to reverse, as shown in Fig. 60*A*.

The general principles of full-fashioned knitting Mr. Miller described in his series of general knitting articles which ran in TEXTILE WORLD *from Jan. 23, 1926, to Feb. 22, 1930, and which has since been published in book form ("Principles of Knitting," McGraw-Hill, N. Y.).*

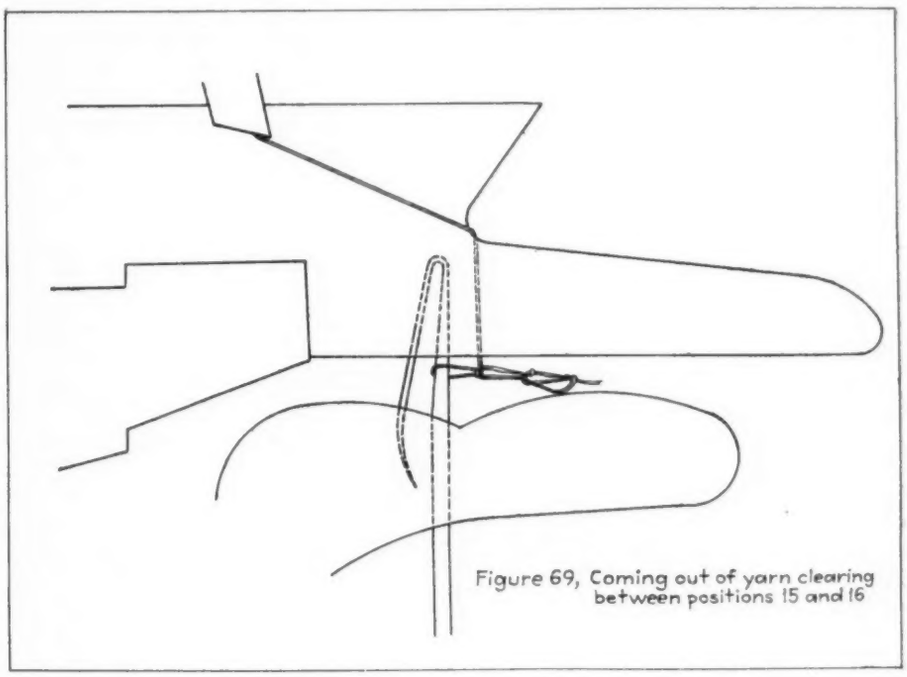
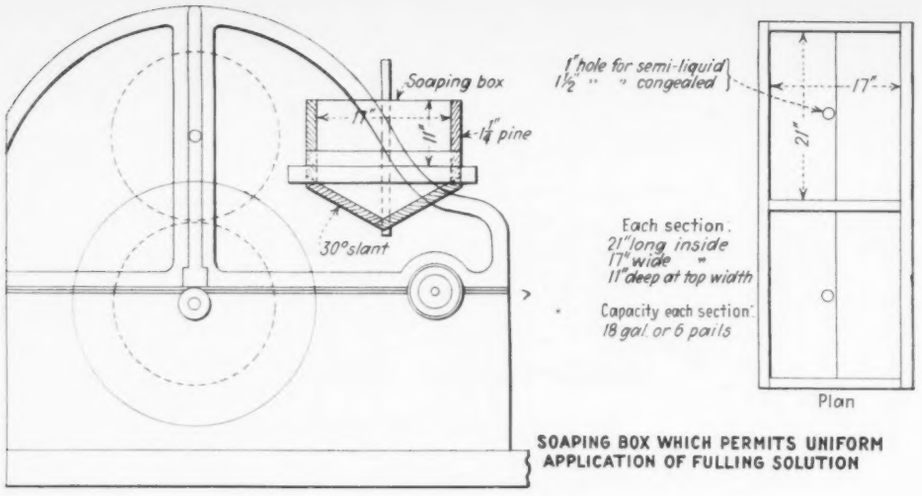


Figure 69, Coming out of yarn clearing between positions 15 and 16



SOAPING BOX WHICH PERMITS UNIFORM APPLICATION OF FULLING SOLUTION

Fulling Improved

Addition of soaping box to mill gives more uniform results

By David W. Welsh

FROM the time of our grandfathers and our great-grandfathers it has never been possible to work out a universal fulling formula which will give equally good results on all classes of fabrics. Now, as in the past, the fuller often has to ransack his brains to find a mixture which will take care of the mysterious things which are put into the cloth during its manufacture. However, essential as it is to have a solution which will do the work properly, it is equally essential to apply it uniformly and in the required amount. That is, correct control of moisture is probably the most important factor in fulling.

Insufficient moisture results in dry spots in the cloth during the fulling operation. Since these dry spots will not felt as much as the rest of the goods, blotches, streaks, and cockles will be apparent in the finished fabric. Excess moisture, on the other hand, makes it almost impossbile to run the mill. The goods slip badly in passing between the rolls; felting is retarded; and, if the goods are kept running this way for any great length of time, rubbed places and stringy felting are likely to occur.

The fuiler can always get a good idea as to the amount of moisture in a piece by watching the top rolls. If they show little white specks and stay that way for some time, the moisture is just about right; if the rolls are running dry, there is a lack of moisture; if the rolls show decided white streaks, there is too much moisture. If the rolls throw the fulling solution out toward the door of the mill, there is a large excess of moisture. In this last event something must be done to correct the condition.

If a dry piece is available for immediate fulling, it should be tied on to the pieces in the mill and allowed to run for a few minutes to absorb the surplus moisture, then be removed, and fulling of the original pieces continued. If the goods are too wet to make this expedient feasible, they should be re-removed from the mill, and the surplus moisture removed by hydro-extracting.

A fulling solution which is semi-liquid at all temperatures is a boon to the fuller. Easy of application, it can be poured onto the goods cold. While it is possible to apply the fulling solution by means of a can fitted with a spout, much more uniform results are obtained by use of the so-called soaping box shown in the accompanying diagram.

This soap box is built into the mill just over the whip roll, the ends resting on 2x1¼-in. cleats which are fastened to each side of the machine just high enough to clear any stretchers with which the mill may be equipped. The soap box illustrated is made the full width of the mill. It is constructed of 1¼-in. soft pine and has a division across the center, so that each side of the box can carry independently its proper amount of soap solution.

A hole is bored in the center of each division and at the lowest point. These holes should be from ½ to 1¼ in. in diameter, according to the fluidity of the solution. The holes are so located that the solution will flow down on the running goods just before they enter the squeeze rolls. Two wooden plugs are provided, which should be long enough to go into the holes and extend about 4 in. above the top of the box. These plugs are about 1½ in. in diameter and are tapered at the bottom to fit the holes. The dimensions given are for a box to be added to a Rodney Hunt Type 2M mill; with a few changes it is applicable to other models of fulling mills and to mills from other manufacturers.

The method of using the soap box is as follows: After the mill has been loaded and run a few turns to take out the tangles, it is stopped, and one man steps up on a platform which is about 2 ft. high and which extends along the front of the mill. Another man hands up to him from a soap truck as many pailfuls of the fulling solution as are required to soap up the mill. He pours the solution into the soap box, starts the mill, and pulls the plug. The fulling solution runs down by gravity and moistens the goods quickly and evenly. If the mill ties up and knocks off before all the fulling solution has run out of the box, the man on the platform quickly replaces the plugs to prevent all of the solution from running down in one place on the goods which are in the machine.

With the device described two men can soap up three or four mills in the same time that it would take them to soap up one by the spout-can method.

Go-to-Meetin' Section

TEXTILE MEN were on the go in April. Southern cotton manufacturers went to Augusta for the A. C. M. A. meeting. Hosiery and underwear knitters from all over the country flocked to Philadelphia for the Knitting Arts Exhibition and for annual conventions of their associations. Greenville beckoned with its Southern Textile Exposition, and with a collection of meetings held in conjunction with it. Operating executives attended an S. T. A. meeting at Raleigh. . . . And, before we went to press, National Cotton Week came and went.

Naturally, our editors were moving around too. They have caught the highlights of this record-breaking collection of textile events—and present them in this special section.

THEY FACED THE FACTS

At Augusta and found them not beyond solution

THE cotton industry's problems were dragged into the open at the Augusta (Ga.) meeting of the American Cotton Manufacturers Association and thoroughly dissected. Although opinions were various, there was agreement in a vigorous fighting spirit that will not be denied a victory. The darker aspects of conditions held a lessening menace as it became more apparent that the drive of a united industry could defeat them.

At the first session on Thursday morning, April 25, at the executive session Friday afternoon, and in some of the committee reports Saturday morning, it was evident that the processing tax and the Japanese import threat were to be the focus of actual efforts to improve the industry's status.

In a private conversation one southern mill man said "Give us any program you want, but give us assurance that it will continue unchanged for two years and we'll manage to get along." From the tenor of the speeches, however, it was apparent that not just "any program" would do. Outside the sessions, almost everything was under consideration from a clean-sweep abolition of NRA to a 100% status quo, but the more conservative attitude of retaining the good and modifying the bad was in the majority when action-time came.

The association was careful to consider and act upon merely those things which, it felt, came within its province. Several matters of importance were laid aside as outside the association's field, being political, governmental, or what not. Still other matters were defined as within the scope of the code authority. On such matters as these the association took no action. These propositions extended from the scrapping of NRA, which was classified as a purely political question, to the matter of hours of labor, which was relegated to the code authority, and labor relations, which were left to the individual mill.

Though in the minds of many, disaster lies at the end of the road unless something promptly is done about the industry's problems, there was no defeatist psychology evident at the Augusta meeting. There was even a kind of optimism in the conversations of the industry's leaders. With some it was an optimism that cures will be applied now that the diagnosis of the disease has been so clearly made; with others it was the optimism of the man who has made his decision—either things *must* improve or he will write "finis" by shutting down or liquidating.

The objectives sought by the association appear not difficult of realization and to that extent executives are relieved of a feeling of crisis. Their path lies more clearly before them than it has for many months. The industry of the South is evincing a stronger sense of unity and power. This feeling of strength gives belief that more drastic remedies can later be applied if the present milder efforts do not bear fruit.

The presence of an unofficial observer from the White House in the person of Marvin McIntyre, secretary to President Roosevelt, made the membership feel that they were close to the headwaters of the political stream and that they would not lose their case for lack of opportunity to set it forth. Mr. McIntyre, when pressed for expression of opinion, stressed the fact that he was in Augusta to listen, not to talk. He met many of the leaders of the industry in private conversation, and when leaving the banquet to catch a midnight train, he said that this had been the most enjoyable 36 hours he had ever spent in his life. He was eulogized by W. D. Anderson, and there was general evidence of harmony in his contacts with the industry.

In various sessions of the convention the processing tax was arraigned as lifting prices so high in relation to other commodities as to restrict demand. It was also condemned in principle. One executive in conversation pointed out that farm relief was a national policy and should be supported by the national treasury and not by a tax on the industry which prepares the farmer's product for market. Speakers stressed the fact that their opposition to the processing tax was not to be interpreted as opposition to farm relief.

W. D. Anderson (Bibb Mfg. Co., Macon, Ga.), president of A.C.M.A., in his address, was plain-spoken on the processing tax. He said:

Our industry is not objecting to payments to the farmer in such amounts as are needed to make his situation equal

NEWLY ELECTED PRESIDENT OF A.C.M.A., SNAPPED AT AUGUSTA

Staff Photo

THOMAS H. WEBB, president of Locke Cotton Mills, Concord, N. C., is the new president of A.C.M.A. Mr. Webb's experience in the industry began when he entered the Glencoe Mill, Burlington, N. C., as a cleaner when a boy of 15. He soon became a weaver at Wenonah Cotton Mills, Lexington, N. C., and later manager at Alamance Mills, Burlington. When 25 he became superintendent and general manager of Eno Cotton Mills, Hillsboro, N. C., followed which service he was superintendent of Erwin Mill No. 1 at Durham and Erwin No. 2 at Erwin. In 1916 he became secretary-treasurer of Locke Cotton Mills, and in 1932 president. He has been active in association work, serving as president of the Cotton Manufacturers Association of North Carolina in 1928 and in various offices with A.C.M.A.

with that of other citizens in this country. Our contention is that in raising the money for these benefits by levying them on the processing of cotton, wheat, corn, and hogs, a gigantic sales tax of from 15% to 25% is being levied on the meat, bread, and clothes of the people. This is an unreasonable levy on the necessities of life and the base of the tax should be broadened.

I cannot escape the conclusion that the sober thinking elements in this country have reached the decision that Mr. Wallace has demonstrated his incapacity to preside over the Department of Agriculture. Save his integrity and his patriotism, I do not see that he has any qualities to commend him for this important place. Mr. Wallace ought to resign his post, take Professor Tugwell with him, and start a farm paper somewhere.

George A. Sloan, chairman of the Cotton-Textile Code Authority, condemned the processing tax as an unreasonable burden on the industry. He said:

In the six months prior to the adoption of the Cotton Textile Code, the average labor cost for processing one pound of cotton was 5.85c. During the first six months of 1934, the labor cost was 10.5c. Coming on top of these increased labor costs under the Code, the cotton processing tax of 4.2c. threw the price of cotton textiles altogether out of line with commodities generally. This industry is not unsympathetic with the Government's underlying purpose. The farmer must have relief. But relief for the cotton farmer is a national problem and unless I mistake the signs of the time, there is a growing feeling in this country, as reflected in the Congress, that it is altogether unreasonable to concentrate the weight of this burden upon one industry and the customers of that industry.

Goldthwaite H. Dorr, president of the Cotton-Textile Institute, took the position that abolition of the processing tax is necessary to get prices down to a point at which goods will move in larger volume.

Senator Tydings of Maryland, who spoke Thursday afternoon, pointed out that whereas tariffs might be supposed to equalize foreign labor costs with our own, one rate applied to goods from all countries penalized those competitors whose standard of living was nearest to our own. He suggested varying rates of duty to meet conditions in various competitor countries, otherwise we may transfer our whole commerce, both import and export, from the rich markets of Europe to the low-wage countries of the Far East. He pointed out the disaster impending to cotton farmers due to lessening consumption of American cotton in world markets.

Japanese competition was assailed as depressing the market far out of proportion to the actual imports, large as those are in the limited fields so far affected (principally bleached goods). On this, Mr. Anderson said:

Since 1928, the greatest quantity of cotton piece goods imported from Japan was in that year and amounted to 1,710,000 sq.yd. After that year it declined to less than 1,000,000 sq.yd. The total quantity brought in during 1934 was 7,287,000 sq.yd.—a sizeable figure in comparison with imports from that country in previous years. The startling feature of this record is that 2,210,000 sq.yd. came in during December, 1934, out of a total from all countries during that month of 3,353,000 sq.yd. During January and February, 1935, Japan sent into this country over 9,000,000 sq.yd. of cotton piece goods out of a total of slightly over 16,000,000 sq.yd. imported from all countries. The tide of imports of textiles from Japan is just rising. They are just getting under way with their program, and it looks as though we may be overwhelmed.

"Cotton manufacturers from Maine to Texas," said Mr. Sloan, "are gratified that the President has ordered an immediate investigation of imports into this country of cotton bleached goods. The Tariff Commission will find that imports of these fabrics from Japan have been greater during the last three months than in the previous 103 months combined." He went on,

The sole cause of this influx of bleached goods is the same which has succeeded in practically annihilating our exports of cotton yarn and cloth to the Philippines and to Cuba. It is the wage rate paid to Japanese cotton textile workers, which, according to reports submitted to the United States Department of Commerce, approximates 23½c. a day.

Japanese wages are Japan's concern—not ours. But if we are to promote recovery in this country and, at the same time, maintain American standards of living, it is this Government's concern and responsibility to vigorously protect NRA hours and wages from low-wage, foreign competition.

On the matter of machine hour limitation Mr. Anderson said,

The machine hour limitation in the Cotton Textile Code has never limited production and will never limit production. It has the salutary effect of spreading the business that is available, as well as to spread the available work.

Mr. Dorr stated his approval of production control plans when he said:

There are two things in the technique of adjusting our production to effective demand which need to be dealt with. First, the actual orderly removal from the industry of equipment which is in fact surplus. Second, the application of temporary flexible measures to deal with the results of overcapacity promptly enough and completely enough to effect results, and not merely taking measures for locking the stable door after the horse is gone. To abandon these measures now would mean to make up our mind to the perpetuation of a situation such as that from 1926 to 1933 in which the industry as a whole not only made no return on its investment, but sustained a loss of $130,000,000.

The labor differential matter was removed from the realm of speculation when W. D. Anderson quoted figures from a survey by Ralph Loper which showed a differential between northern and southern wages of $1.946 or $1.351 per week depending on whether the southern worker lived in or out of the mill village.

"This study just made," said Mr. Anderson, "completely disposes of the question, often raised, that the southern textile mill, with a wage differential of $1.00 per week, has an advantage of its eastern competitor in wage cost."

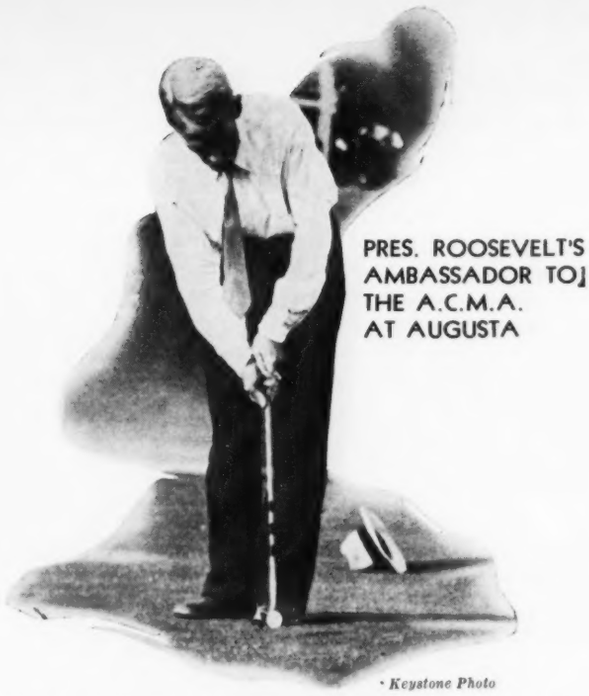
Outside the convention room it was pointed out that before NRA the wage differential was far greater than $1.00 in the South's favor. It was said that there was little chiseling at present in the South and that differences in the wages paid to the higher paid workers was not chiseling but differences to balance differences in the work—as for example a loom fixer on plain print cloth looms might in justice receive considerably less than a fixer on dobby looms running fine goods. The difference in character of work precludes, these authorities believe, the setting up of minimums on classified jobs.

The Loper survey as quoted by Mr. Anderson also showed that southern cotton mill operatives were better paid than workers in other occupations in the same communities. Unskilled textile workers received 30c. per hour while other unskilled labor such as clerks in chain stores averaged 24.14c. per hour; semi-skilled averaged $16.59 per week for textile and $15.16 for stenographers, telephone operators, and saleswomen in stores; skilled male help averaged $18.79 for textile, and $31.00 for carpenters, plasterers and plumbers. In the latter occupations employment is irregular and the survey gives average annual earnings in 1934 as $864 for skilled textile against $815 for skilled outside workers.

"This study by an impartial engineer," said Mr. Anderson, "should forever dispose of the charge that the textile industry is a low-wage industry."

The cotton bounty plan was not given further development though individuals at Augusta expressed favorable interest in it. Sam Lamport attended but did not speak officially in behalf of the plan. Among the resolutions however was a paragraph leading toward the cotton bounty in urging that coming crops be divided in two parts, that for export being available on a lower basis than that for domestic consumption.

Although no official report was made regarding the special executive session on Friday afternoon from which all non-members were excluded, it was understood that NRA and Code No. 1 were handled without gloves. Many felt that both were ripe for scrapping, but majority opinion was that too many possible advantages were to be had from them to warrant such drastic action. The argument that NRA was a political rather than an industrial matter and that its future must be left in the hands of Washington, made the hands-off policy unanimous. Opponents of NRA expect a gradual relaxation of what they regard as objectional features.



PRES. ROOSEVELT'S AMBASSADOR TO THE A.C.M.A. AT AUGUSTA

• Keystone Photo

MARVIN McINTYRE, Secretary to President Roosevelt, on the links at Augusta, between interviews with cotton manufacturers. He attended the A.C.M.A. convention as special emissary of the President, to obtain first hand information on the problems which had made the industry front page news. He must have heard much but he said little.

Merchandising Symposium

"WHEN it comes to merchandising, we have shown our greatest weakness, and it is there that we should concentrate our attention." solemnly declared President Anderson, calling to order the Friday morning merchandising symposium.

Saul F. Dribben, vice-president of Cone Export & Commission Co., New York, first speaker on the program, described the functions of a selling organization, pointing out that "a *selling agent is not a broker* whose interests lie solely in volume." Purposes of a selling agent, he said, are (1) to style goods, (2) to sell goods, (3) to guarantee the mill against credit losses on sales.

Summarizing from the standpoint of the selling agent, he stated that the following are essentials if the best results are to be obtained: (1) Implicit confidence, sympathetic and cooperative understanding between mills and selling agents; (2) Production based on market requirements to avoid markets ruled by the need of liquidating excess stocks; (3) Insistence on the part of mills that sales representatives maintain the closest cooperation through group contacts in the primary market set up by the Association of Cotton Textile Merchants; (4) Less *selling* and more and better *merchandising*.

Flint Garrison, director-general of the Wholesale Dry Goods Institute, New York, and chairman of the Wholesale Code Authority, speaking on distribution through wholesalers, stated that statistical studies had convinced him that (1) the productive capacity of the American cotton textile industry is inadequate to supply the actual need for cotton goods which exists in the United States alone, and (2) the existing need will be promptly translated into profitable demand if an equitable allocation of individual purchasing power is effected. He urged manufacturers to discontinue any negative merchandising practices which might tend to lessen the necessary cooperation between producer and wholesale distributor.

Arthur Fluegelman, of N. Fluegelman & Co., New York, speaking on problems of the industry from the standpoint of the converter, cited three major problems which "at the moment are in common with the mills." The problems are (1) to establish a more stable basic market for forward operations, (2) to develop and foster style experimentation, and (3) to encourage profitable individualism by eliminating destructive imitation.

Worth Howard, manager of the New York office of Donnelly Garment Co., Kansas City, Mo., speaking from the standpoint of the garment manufacturer, urged the mills to lay more stress on style and design. "Often," he said, "there is more money in short, highly styled runs than in long, blind, staple runs." He also urged manufacturers to stabilize prices so that the garment manufacturer will not be afraid to stock ahead.

The final speaker on the morning's program was David

Ovens, president of the National Retail Dry Goods Association, Charlotte, N. C., and affiliated with the Cavendish Trading Corp. which controls fourteen retail department stores. Shortly after his opening remarks, Mr. Ovens went "off the record" and kept the entire assembly in amused uproar for the next 30 minutes. However, beneath all the jibes and jokes, his theme was serious. He admonished the manufacturers to put some thought into *what* is being made as well as *how* it is being made. He urged a closer union between producer and retailer declaring that his buying office placed first emphasis on quick acquisition of desirable material as a reasonable price, and not on bargain lots and group purchases. He closed with the remark that "many of us are so dumb that we are content to continue to operate our plants without much, if any, hope of a profit."

Resolutions and Elections

THE Saturday morning business session was featured with an address by Luther H. Hodges, of Spray, N. C., and by the usual committee reports and election of officers. Thos. H. Webb, president of Locke Cotton Mills Co., Concord, N. H., and first vice-president of the association for the last year, was elected president for the coming year. Donald Comer, of Birmingham, Ala., was elected first vice-president, and Robert E. Henry, of Greenville, S. C., was named second vice-president. W. M. McLaurine, of Charlotte, N. C., was re-elected secretary and treasurer.

New members of the board of government were elected as follows: Marshall P. Orr, Anderson, S. C.; George M. Wright, Great Falls, S. C.; and R. H. Freeman, Newnan, Ga. Members re-elected included: Chas. A. Cannon, Kannapolis, N. C.; K. P. Lewis, Durham, N. C.; and Allen Little, Alabama City, Ala.

The retiring president, Mr. Anderson, was presented with the association medal by B. B. Gossett, of Charlotte, who expressed appreciation of the members for the way in which the "Bishop" had devoted his time and energies to the highly complex business of the association during the last tumultous year.

In his address, Mr. Hodges called attention to the Blue Ridge Industrial Conference and urged the manufacturers to get in step with the present practice of setting up alphabetical agencies and create one of their own to be known as the "PPP"—to deal with people, policies and politics.

S. Marshall Beattie, of Greenville, read the report of the cotton committee, which called attention to a revision of buying rules and asked that the committee be empowered to work with the shippers' association in this.

Carl R. Cunningham, traffic manager, Atlanta, Ga., presented his report. It related activities of his department and expressed opposition to any increase in freight rates. Captain Ellison A. Smyth, Flat Rock, N. C., is chairman.

Stewart W. Cramer, of Charlotte, reported on the National Industrial Conference Board and recommended that membership be continued. He also described the work of the Textile Foundation during the last year, pointing out that much economic and scientific research had been carried out.

R. E. Henry, of Greenville, reviewed briefly the activities of the policy committee and said that he expected a report soon from the Textile Work Assignment Board. Earle R. Stall, of Greenville, represents the industry on this board.

O. Max Gardner, counsel, Washington, D. C., scheduled to report on National legislation, discussed this subject the previous day in executive session. T. M. Marchant, of Greenville, reported for the nominations committee and elections were unanimous.

In the absence of Donald Comer, of Birmingham, chairman of the resolutions committee, Chas. A. Cannon, read a list of nine resolutions, all of which were adopted.

The most lengthy resolution, and most important in the eyes of many manufacturers, was devoted to the processing tax, as anticipated. Although minus the fire and bitter denunciation of President Anderson's speech, the resolution plainly stated the stand taken by the association on this vital issue. After reciting in detail hardships which the tax had brought on the industry (inability to pass tax fully on to consumer, 800,000 bales decrease in cotton consumption, forced curtailment, increased inventories, decreased employment due to shutting down of 71 mills, insufficient compensatory taxes on competing fibers, and depressed markets due to 4% of the mills evading the tax), the resolution recommended that "a thorough study and survey be made of the entire structure of farm benefits with a view of placing the tax burden for benefit purposes in harmony with the criticism of processing taxes as contained in the statement of Secretary Wallace—'The most serious objection to the processing tax and one which merits careful consideration is that the greatest burden falls on the poorer people.'"

A second resolution urged that Secretary Wallace "continue the cotton loan plan for the 1935-36 crop, and that he make an immediate announcement of his intentions to do so." It was stressed that "it is the uncertainty as to future policies in such matters that disturbs and destroys confidence and chokes trade." In connection with this resolution it was requested that "every effort be made to induce all cotton growing countries not to increase their respective crops."

President Roosevelt was urged to take immediate corrective measures to curb Japanese imports which in January, 1935, showed "an increase of 30,000% over January, 1934." An equalizing tariff on sisal, jute and jute products, the revenue from which would be applied to cotton benefit fund, was requested.

Administrators of relief funds were asked to use part of these funds for the purchase of cotton goods, placing the orders as soon as possible because of the present curtailment. Special Government funds were requested for use in research to foster "increased and new uses of cotton and cotton goods."

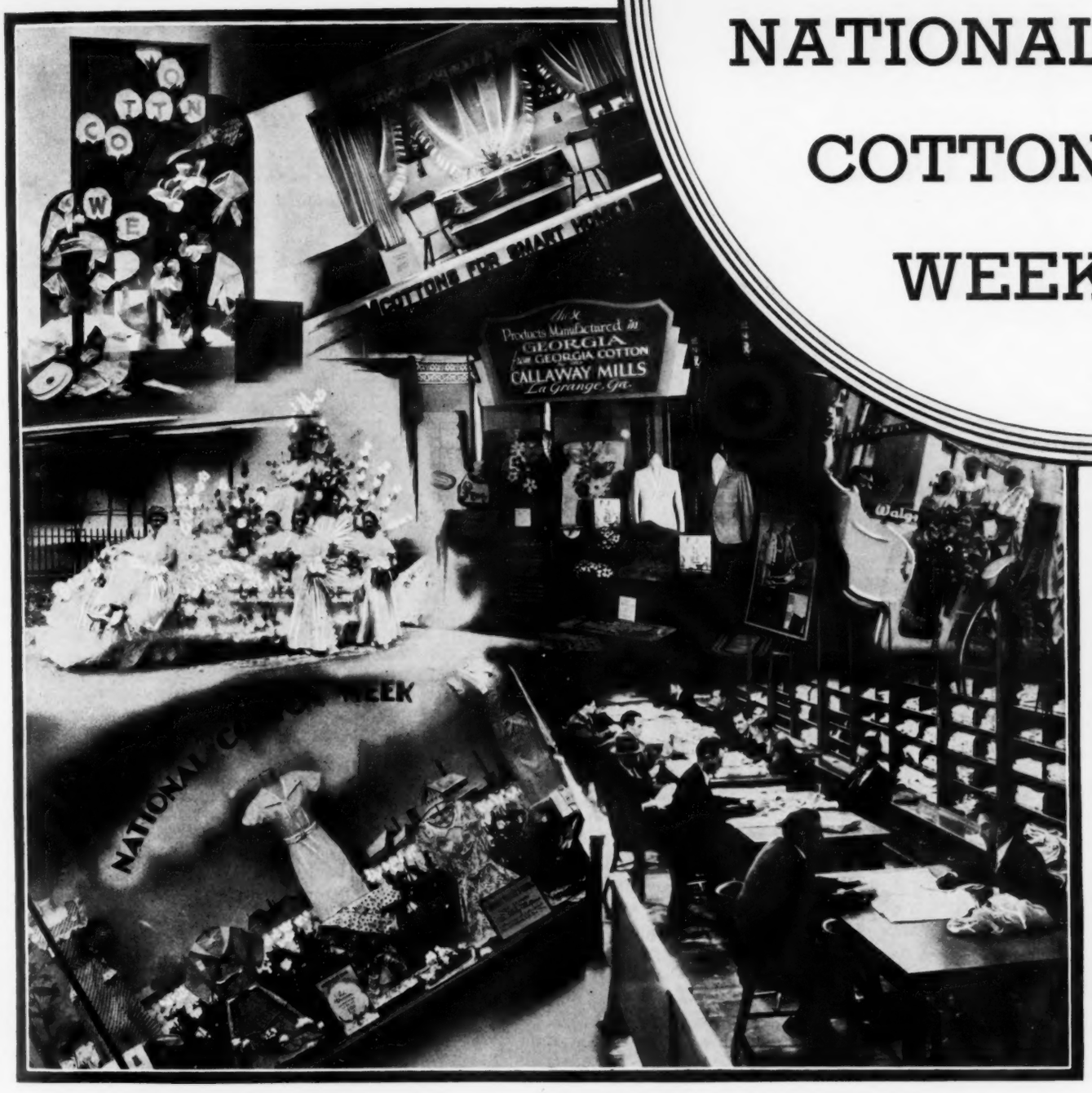
A study was suggested whereby cotton stored in Government warehouses might be made into cloth for export at prices low enough to compete with goods produced by foreign countries.

The Department of Agriculture was asked to "take the necessary steps that our cotton may be sold net weight," in order to encourage usage of cotton bale-coverings.

"In conclusion," the association deplored, "the efforts being made to use the present distress affecting the entire cotton-textile industry as the means of sectional disturbance and political agitation." It held that "this is the time for national unity and cordial cooperation on the part of every section of this country as the cotton textile industry of the United States struggles for its existence as one of the basic industries of America."

Thursday evening the membership witnessed a cotton style show directed by Miss Katherine Cleveland, and Friday evening the banquet featured a minstrel show.

NATIONAL COTTON WEEK



THE summer selling season for cottons opened with a bang this year a week early, May 6 to 11—National Cotton Week! Last year, 30,000 retail stores took part in this great selling promotion. This year it was estimated that even more joined the cotton parade. Over 250,000 official posters were distributed this year and over $2,000,000 was spent in local advertising and promotions by distributors and others.

National Cotton Week continues to grow in merchandising importance because:

1. Countless millions of people are interested in cotton and use it from infancy to old age. Over 12,000,000 persons actually are dependent for a livelihood on its growth, manufacture and distribution.

2. Cotton now is more in fashion than ever before. International stylists have designed garments for men, women and children which compete with the best in appearance and serviceability. For example, a collection of original cotton lingerie models, designed by Dilkusha and Kotchoubey, of Paris, set New York fashion writers on fire at a recent showing. Another style factor of interest is the hand-knitting and crocheting craze which has swept the country during recent months. This fad alone has brought many a yarn mill out of the red.

3. A trend toward cotton household necessities has created considerable interest. A recent bulletin sent out by the Cotton-Textile Institute was devoted to "The House that King Cotton Built"—inspired by the National Housing Act. A modern low-cost house is shown fitted almost exclusively in cottons: rugs, bedspreads, draperies, curtains, upholstery, towels and chair covers. Even the nursery walls are covered with shellacked gingham.

4. An important factor in the success of National Cotton Week is the extensive program of selling helps sponsored by the Cotton-Textile Institute. These bulletins, prepared by experts and distributed each year to retailers, have played a large part in increased volume and profits. Each succeeding year since its inception has seen National Cotton Week increase in merchandising importance, and this year was no exception to the rule.

34,000 AT PHILADELPHIA . . .

Dual hosiery-underwear conventions and knitting arts show draw record crowd

CONSTRUCTIVE thinking that was promptly translated into decisive action, and an evident trend toward cooperation as against the old-line "rugged individualism"—these are the chief aspects which come to mind when we take an over-all view of Philadelphia's "Knit Goods Week." Granting the significance of the various separate events—the thirty-first annual Knitting Arts Exhibition, which drew the largest attendance since pre-depression years, and the many-sided NRA problem which occupied the conventions of the National Association of Hosiery Manufacturers and the Underwear Institute alike—yet it is the composite picture rather than any single phase which makes the Knit Goods Week at Philadelphia stand out so notably in perspective.

And assuredly the broad aspect is one well calculated to inspire confidence in the knitting industry. Paramount in significance among the week's many activities at Philadelphia was the dual convention program, which brought hosiery and underwear manufacturers to the Commercial Museum in record number. Between convention sessions hundreds of these delegates were interested visitors at the Knitting Arts Exhibition from noon Monday, April 22, when the exhibition opened, until Friday, April 26, when it closed. Total show attendance was 34,000. We will not touch here on the multiple importance of the 165 exhibits, as this is discussed elsewhere in this issue. The decision of the Underwear Institute to hold its annual convention on Thursday, April 25, at the Commercial Museum in conjunction with the other events of the week marked a step further toward cooperation between the two major knit goods branches. The annual convention of the hosiery association was held the day previous at the Museum. This double arrangement proved advantageous to all the knitters attending, especially of course to those who manufacture both hosiery and underwear. Frequent comments in informal conversation reflected the delegates' approval of the dual convention idea.

Exhibit at Philadelphia Show by hosiery association of Japanese hosiery

Indeed when the events of the crowded week reached their conclusion, we left Philadelphia carrying the strong impression that the hosiery and underwear manufacturers now recognize their mutuality of interests to a greater degree than ever before. And, certainly, that is no minor accomplishment.

Three-Ply Program Occupies Hosiery Men

THE week's program for the hosiery manufacturers had three main divisions: the industry-wide Code Authority meeting on Monday; the conference on hosiery standards Tuesday, and the annual convention of the National Association of Hosiery Manufacturers on Wednesday. Three developments led in significance at these sessions. Earl Constantine, executive director of the Code Authority, sounded the tocsin for a war on the so-called hosiery converters who get hosiery dyed at below-code prices and thus undersell the industry. By a vote of 55 to 9, the manufacturers attending the Tuesday meeting approved the full-fashioned hosiery standards which had been developed in cooperation with the consumers' organizations. Third, but equally important, was the spirited address of John H. Brine, retiring president, who told the association convention Wednesday that the manufacturers expected too much of their trade association and were neglectful of their individual obligations to the industry.

The hosiery converter issue came up first at the Code Authority meeting on Monday; it was still being discussed with heat by delegates at informal conclaves when the convention adjourned Wednesday. The nub of this problem is that dyers who specialize in hosiery enjoy a latitude not accorded hosiery manufacturers who operate their own dyeing plants. The latter have had their dyeing costs materially increased by the NRA, necessitating higher prices. As neither the processing code nor the hosiery code carry sufficiently rigid provisions respecting independent dyers, certain of these companies have been dyeing hosiery at about 25c. per doz. below market, and thus penalizing firms which adhere to code standards. Delegates seemed agreed that code revision offered the only solution, and Mr. Constantine announced that he had submitted to the NRA a proposed remedy, the details of which could not be disclosed at this time.

The hosiery standards approved at the Tuesday meeting served both to establish definite minima of construction and rules of inspection. The standards were submitted by Wm. H. Gosch, chairman of the standards committee. Spirited exception to certain provisions was taken by a minority present, the chief critic being S. D. Sanson, president, Ajax Hosiery Mills. The point stressed by Mr. Sanson and others was that the "A," "B" and "C" grading method used was not flexible enough to cover certain cases, as, for instance, where a

45-gage "B" might be superior to a 42-gage "A" stocking. The standards now will be submitted to the entire hosiery industry for a mail vote.

Into a scant three hours at the National Association's annual convention, on Wednesday was crowded a meaty program of important addresses and decisions. Mr. Brine refused reelection as president because his home town—Des Moines, Ia.—was too far from the association's zone of activity. Therefore, William H. Gosch, vice-president of Nolde & Horst Co., was elected president. Austin H. Carr, of Durham Hosiery Mills, succeeded Mr. Gosch as senior vice-president, and Roy E. Tilles, of Gotham Silk Hosiery Co., was chosen junior vice-president, succeeding Mr. Carr. Ernest Blood was reelected treasurer.

The industry's problems incident to NRA expiration were searchingly examined by Earl Constantine, in his address as managing director. He emphasized that definite action by Congress prolonging the NRA would help business by stimulating confidence, but he warned against destructive changes in the law. Vital statistics for 1934 were cited. Of the industry's total output, which aggregates $290,000,000 wholesale value, $185,000,000 is full-fashioned and $105,000,000 seamless. Output in dozens: 73,332,000 seamless, against 30,549,000 full-fashioned.

Mr. Constantine said the Japanese competition threat was more potential than actual, but advised continued close study of the subject. The report of the Raw Silk Committee, submitted by H. V. W. Scott, proved the signal for a demonstration. Various speakers strongly praised the committee's work during recent years, and a rising vote of thanks was given. In his presidential address, Mr. Brine gave the manufacturers praise for progress in many directions, but also blamed them for having "muffed the price situation, which is the most important thing we face." He severely rebuked the industry for wrecking the $5.75 decision last year by permitting heavy last-minute telephone business at the old price. The report of the treasurer, Ernest Blood, showed the association's finances to be in very healthy condition.

All-in-all, though the convention heard some harsh truths, the prevailing spirit was optimistic, and adjournment found the manufacturers in a hopeful frame of mind.

Quick Decisions Mark Underwear Convention

IF HOPEFULNESS describes the hosiery convention then the underwear manufacturers' meeting might almost warrant the term "buoyant." Through their activity, whether at the executive session gatherings or at the annual convention Thursday of the Underwear Institute, the underwear manufacturers showed a spirit which came as close to the care-free normal of pre-depression days as we have seen for some time. Which does not mean, indeed, that life in the underwear industry is just one merry song. Plenty of serious problems came up for action at the convention. The cotton processing tax, the tubular knitters conflict, the NRA tendency to view knitted underwear as a garment rather than a textile industry, etc. However, these problems were handled with decision and dispatch; in truth, it seemed as though the lightness of mood which the delegates brought to their tasks served rather to permit clearer thinking and prompter action.

Easily the highlight of the convention was the address of Sherman P. Haight, retiring president of the Institute.

Wm. H. Gosch, elected president of hosiery association

Ralph M. Jones, elected president of Underwear Institute

Some observers were disposed to regard his talk as the most constructive single utterance of the week. Dropping the usual convention manner, Mr. Haight spoke with extreme frankness on the industry's outlook. His talk had two chief phases—NRA code revision; and the need for finding new products which can be made on current equipment, thus keeping abreast of styles. Following are his salient points. On the NRA: It should be continued, but the individual vitality of the trade association must be maintained; there is a trend in the NRA to destroy the trade association and this must be prevented at all costs. Knitting is a basic invention, like weaving, and knitting machine products should be kept strictly within code jurisdiction of the three knit goods branches: hosiery, underwear and outerwear. On market expansion: Keep codes sufficiently flexible to permit development of new lines and products. New machinery restrictions of the codes should be modified to allow normal progress, otherwise "the United States will become a stagnant nation." On the North and South wage differential: Firmly approve continuation of present basis. Though his personal interests were 9 to 1 in the North he believed that to force parity on the South would be uneconomic and unfair.

Conservative optimism keynoted the address of Roy A. Cheney, managing director. Confident the NRA would be extended, nevertheless he had an emergency program ready in case the code system were dropped. Lack of proper NRA cooperation impeded code enforcement work; yet, he added, the situation was good as, out of 759 investigations, only a few major violations were found. F. E. Simmons, research and planning director, made public an analysis of the industry based on a recent survey. Mr. Simmons reported that weak prices have offset good sales; 1934 underwear prices were only 59% of 1929, against 71% in all knit goods and 81% in all textiles and textile products. Yearly turnover averaged 3.4% on heavyweight cotton and wool, 61% on woven cotton, and 13.3% on knit silk and rayon underwear.

The convention elected the following officers: President, Ralph M. Jones, vice-president and general manager, Utica Knitting Co.; first vice-president, George E. Rutledge, president of Munsingwear Corp.; second vice-president, B. C. Russell, Russell Mfg. Co. Oscar W. Gridley, Utica Knitting Co., continued as treasurer. The offices of Institute president and Code Authority chairman were separated for the first time, T. H. Muller, vice-president of R. K. Laros Silk Co., being chosen for the latter post.

GREENVILLE WEEK . . .

Meetings held by school S. T. A., Research Insti

A BUSY town was Greenville, S. C., during the week of April 8. In addition to the Southern Textile Exposition, a three-day convention was held by the heads of the country's eleven textile schools with the officers of the Textile Foundation; a one-day meeting, including a banquet, was held by the textile division of the American Society of Mechanical Engineers; a well-attended luncheon-meeting was sponsored by the Southern Textile Association; another large luncheon-meeting was held by the United States Institute for Textile Research; and a dinner party was enjoyed by the alumni of Lowell Textile Institute.

Textile Exposition

The Southern Textile Exposition was officially opened at 10 a.m. Monday by W. G. Sirrine, president of Textile Hall Corp. Addresses of welcome were made by J. M. Mauldin, mayor of Greenville, and S. M. Beattie, head of the South Carolina Cotton Manufacturers Association. Talks were made by G. H. Dorr, president of the Cotton-Textile Institute, who discussed the processing tax and foreign competition, and by F. W. Hobbs, chairman of the Textile Foundation, who attacked the proposed Black, Connery, and Wagner bills. A description of the outstanding new equipment at the show is given elsewhere in this issue.

Educators' Convention

On Monday, the heads of the textile schools were addressed by Dr. B. E. Geer, president of Furman University, Greenville, S. C., and former textile-mill executive, on "Needs for Changes in Our Educational Systems." At the same meeting, J. W. Harrelson, dean of North Carolina State College, discussed in detail the work which is going forward at his school.

The Greenville Chamber of Commerce entertained the group Tuesday at a luncheon, where informal talks were made by several of the educators. Chairman Hobbs briefly outlined the development of the Textile Foundation and explained its services to the industry. He stated that it is desirable and permissible to spend the principal as well as the interest of the Foundation on worthy projects, and that he is open to suggestions as to problems which might call for investigation and research.

Other members of the group who spoke briefly included E. W. France, director, Philadelphia Textile School, Philadelphia, Pa.; C. H. Eames, president, Lowell Textile Institute, Lowell, Mass.; J. E. Sirrine, president, J. E. Sirrine & Co., Greenville; W. G. Sirrine, president, Textile Hall Corp., Greenville; F. M. Feiker, director, Educational Survey, Textile Foundation, Washington; and E. T. Pickard, secretary of the Foundation.

The entire party spent Wednesday at Clemson College inspecting the Textile School and other departments. At a business meeting held that afternoon, a committee was appointed to do further work on possible plans for reorganization of certain textile courses. It consisted of Henry W. Nichols, principal, Bradford Durfee Textile School, Fall River, Mass.; W. D. Fales, director, Rhode Island School of Design, Providence, R. I.; H. H. Willis, dean, Textile School, Clemson A. & M. College, Clemson, S. C.; and C. A. Jones, director, A. French Textile School, Georgia School of Technology, Atlanta, Ga.

In addition to the deans and directors mentioned previously, the group included the following: John B. Bagley, head, Department of Textile Engineering, Texas A. & M. College, College Station, Tex.; Carl D. Brandt, head, Textile School, Texas Technological College, Lubbock, Tex.; E. W. Camp, head, Department of Textile Engineering, Alabama Polytechnic Institute, Auburn, Ala.; Thomas Nelson, dean, Textile School, North Carolina State College, Raleigh, N. C.; Joseph H. Hanford, president, New Bedford Textile School, New Bedford.

Engineers' Meeting

At the technical session of the American Society of Mechanical Engineers on Wednesday, held under the auspices of the Greenville section, the following papers were presented: "Air Conditioning in Textile Plants," by G. P. Patterson, Cooling & Air Conditioning Corp.; "Steam and Fuel," by R. M. Gates, Combustion Engineering Co., Inc.; "Treatment and Disposal of Trade Wastes," by C. D. Blackwelder, J. E. Sirrine & Co.; and "Textile Mill Lighting," by L. W. Burdette, J. E. Sirrine & Co. John McPherson, J. E. Sirrine & Co., and chairman of the program committee, presided. Speakers at the dinner Wednesday evening included Ernest Hartford, assistant secretary, A.S.M.E., who spoke on "A New Era in the Engineering Profession"; and F. M. Feiker, executive secretary, American Engineering Council, who discussed the "Opportunities and Responsibilities of Engineers." J. R. Gill, American Enka Corp., and chairman of the section, acted as toastmaster.

Mr. Patterson, in his paper, emphasized the advantages of cooling textile manufacturing plants—and cotton

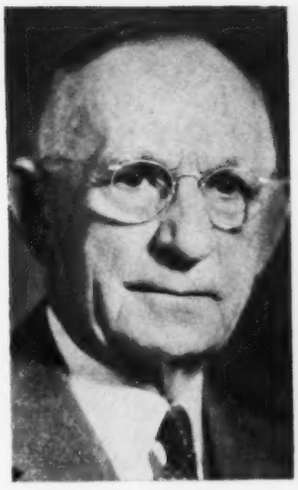
heads, A.S.M.E., tute, and Lowell alumni

spinning rooms particularly—during the four summer months to facilitate the accurate control of the moisture content of the material in process. For this purpose he advocated the use of an air washer which permits utilization of the present humidifying equipment, with the installation, if required, of extra heads of the atomizer type. In addition to the washer, apparatus needed consists of a centrifugal fan, pump, control instruments, and a cooling system. For chilling the water, the speaker suggested the use of a steam-jet refrigeration system as usually the most economical, since textile mills ordinarily have a steam plant which is not operating at full capacity during those months of the summer when air cooling is necessary.

Mr. Blackwelder pointed out that the problem of stream pollution is becoming increasingly important to the textile industry, almost every state having laws prohibiting the discharge of objectionable waste materials from industrial plants into the streams, and federal control now is being sought by a committee appointed by the Secretary of War. Treatment of trade wastes, according to Mr. Blackwelder, while an ever-present expense, is not so costly as most mills believe, and is cheaper than are damage suits from property owners and the possibility of incurring the ill will of the community. In general, treatment consists of discharging the wastes into one or more basins, mixing in a mixing chamber with chemicals, and transferring first to a flocculation chamber and then to a settling basin. The exact treatment and type of equipment required depend on the constitution of the waste, location of the mill, and other factors. The initial cost of disposal plants varies from $35 to $400 per 1,000-gal. capacity per 24 hours. The chemical cost varies from ¼c. to 75c. per 1,000 gal. of waste.

In discussing "Steam and Fuel," Mr. Gates declared that many mills do not realize they are in the power business and that, by overlooking the fact, they are permitting an unnecessary leak in their profits. He pointed out that maximum thermal efficiency does not always mean maximum economic efficiency, due to the law of diminishing returns; and he declared that power should be considered in terms of dollar efficiency. Textile manufacture, which ranks third among the industries in the amount of primary power and first in the number of wage earners, is appreciably affected by the advanced fuel prices and wages caused by the codes; and hence it should be particularly interested in equipment and methods for reducing the cost of both. The small, inexpensive stokers now available, for example, remove all justification for the hand-firing of boilers of at least 100 hp., since they usually pay for themselves in from one to three years.

Textile mills are not adequately lighted at present, in the opinion of Mr. Burdette; and the fault is largely due to the lack of adequate, concrete data showing the effect of various improved lighting layouts on production and quality. He advocated the forming of a committee consisting of representatives from the several technical associations to conduct the first thorough investigation of the subject.



William G. Sirrine, president, Textile Hall Corp.

Bertha M. Green, secretary, Textile Hall Corp.

Research Institute Luncheon

At the meeting of the United States Institute for Textile Research, on Thursday, C. H. Clark, secretary, outlined the purposes and accomplishments of the association and urged more active support from the South. Dr. H. D. W. Smith, of the executive committee, outlined the investigation of cotton and rayon warp sizing which is now under way. Several southern members spoke in favor of establishing an active southern committee to engage in all research activities undertaken by the institute. J. W. Arrington, president of Union Bleachery, presided at the meeting.

S. T. A. Meeting

Speaking at a meeting of the Southern Textile Association, on Friday, J. E. Sirrine, president, J. E. Sirrine & Co., stated: "Better tools are the salvation of the textile industry, and without these you are on your way out . . . . There is nothing to the idea of trying to build an umbrella large enough for everybody to stand under—the survival of the fittest is as important today as ever before. . . . .

"The thing to do now is to look over the situation, find the weak spots and correct them. Many mills will pass out of existence because of poor equipment, adverse location, or bad management. We must cure our own evils by producing a better article at a better price. Improved working conditions will improve morale and help lift us from the doldrums. Then there will be profit for ourselves, profit for the operatives, and profit for the stockholders."

At the conclusion of Mr. Sirrine's remarks, Culver Batson, president, S.T.A., introduced H. H. Iler, past president, who presented to Marshall Dilling, also a past president, a distinguished service medal for his "invaluable labors" in helping build up the association over a period of many years.

Lowell Alumni Dinner

At the Lowell Textile Institute's alumni dinner on Tuesday, at which H. P. Goller, of Greenville, was toastmaster, President C. H. Eames discussed recent developments at the institute, including the granting of Master of Science degrees in chemistry and engineering. On Friday of the same week President Eames addressed another group of the alumni in New York.

LOOMS PREDOMINATE

At Greenville on 150th anniversary of power type and 40th of automatic

THE unusually extensive exhibits of new weaving equipment at the Southern Textile Exposition in Greenville, S. C., during the week of April 8, strongly indicated that the spirit of Edmund Cartwright, the English clergyman who introduced the power loom 150 years ago this year, was present. Also present —in person—was James H. Northrop, whose automatic loom was first described in TEXTILE WORLD just 40 years ago this month of May. Actually the first Northrop looms were installed in the mill of the Queen City Mfg. Co., Burlington, Vt., in 1894; but, as has often been true in the matter of new machinery development, they were not announced to the world until they had proved themselves worthy under mill conditions. Mr. Northrop crossed the continent to make his first contact with the textile industry in 38 years.

Elsewhere in this issue will be found an article concerning Mr. Northrop and his notable though brief revisit to the industry whereon is built his fame. We should like to describe, in his eyes, all the machines which were strangers to him, including the automatic spooler and high-speed warper which he said impressed him as representing the greatest advance in textile equipment since he bade farewell to the industry; but to do so would be to write an encyclopedia. Our readers, however, through their own experience or through following the columns of TEXTILE WORLD, are familiar enough with the progress of the industry to imagine the impressions which today's machinery must have made on a man who had had no direct contact with the industry during this twentieth century. If this test of their imagination proves interesting, let them try to picture the feelings of Edmund Cartwright if, through some reincarnation, he could have been present in person also.

Having now suggested a modest program of entertainment and enlightenment for the more imaginative of our readers, let us proceed to describe briefly, as is our custom in such matters, the strictly new productive equipment which was shown at Greenville.

WEAVING EQUIPMENT

AT FIRST glance the modern single-shuttle cam loom, applied to both cottons and rayons, resembles the original Northrop; but closer inspection shows this to be in general outline only. We have described most of the numerous features of the loom before, but in recent months a new development—the semi-low-roll silk-type take-up with larger take-up roll —adapts it to a wider range of rayon fabrics. The high-speed principles applied to this loom in recent years have now been put to fancy work through the application of a 25-harness high-speed dobby in a low position on the side of the loom opposite the battery, where it is less inclined to cause vibration. The same principles have also been applied to wide-sheeting looms built in widths from 72 to 110 in. In all cases, the new looms operate at least 30 picks per minute faster than even the models which immediately preceded them.

Likewise, among the cotton bobbin-changing looms of the multiple-shuttle type, which employ a modified form of the Northrop principle, several important innovations were to be found. A new terry loom and a head-motion pant-goods loom take shuttles holding three times more yarn than formerly, beams holding 50% more yarn, and cloth rolls holding 75% more fabric. The towel loom, which operates at 180 picks or more, boasts the first electric stop motion ever applied to terry warps. The pant-goods loom runs at 152 to 162 picks.

Also exhibited was a new 4x1-box cotton-upholstery loom built especially heavy, including the 20-harness dobby, and provided with the same large-package advantages of the two machines just mentioned. It is 5¼ in. deeper from front to back and has a 6½-in. throw of crankshaft, as against 5 in. on the other looms. The model shown measured 68 in. between swords and was operating at 142 picks. An automatic wool loom operating 10% faster than previous models is suitable for the entire range of woolen and worsted fabrics and marks something of a departure from the restrictions imposed on mills by specialty looms. It is built up to 120 in. between swords with 26-harness and 4x1- or 4x4-box capacity.

Among the shuttle-changers there were innovations to be seen. A new 4x1-box silk and rayon model changes shuttles automatically in the top two cells, while the bottom two—designed to carry the more slowly exhausting decorating yarns —are non-automatic. When, however, the loom stops for replenishment of a non-automatic filling, the exhausted shuttle is ejected by the mere pressure of the weaver's foot on a conveniently located pedal. A single-shuttle rayon loom of the shuttle-changing type employs the larger take-up roll recently adapted to the high-speed single-shuttle bobbin-changers.

Among the new loom accessories was a warp-stop-motion knock-off box having no reciprocating parts and requiring no lubrication. An electrical delayed-stopping device for filling motions requires no re-setting, will stop a 2x1-box loom with the shuttle on the plain side, and can be supplied with ratchet wheels to meet other conditions. A new filling detector of the fork type, but having only one prong and requiring no grid, is designed for simple setting and gentle action on the yarn.

Small metal gages for picker sticks were handed out gratuitously by one manufacturer of pickers. A two-shift, pick-cut counter totals day and night picks and can be reset when the required picks in a cut have been woven. Shuttle manufacturers exhibited one-piece cast-iron eyes for automatic looms, dispensing with pins and movable parts, the tension being controlled by the size of the hole; while one displayed an automatically expanding ear-clip catch which prevents injury to the base of the filling bobbins. Another automatic-loom shuttle locates the tension near to the tip of the bobbin in back of the shuttle eye in order that it will become effective quickly on the first pick; and a non-automatic shuttle for rayon work has been equipped with spindle wings and pin to keep the rayon quill straight.

A warp-tying-in machine for rayon and silk operates at 250 or more knots per minute; selects its ends from a 1x1 lease, rather than from a flat sheet as in the case of cotton; and dispenses with pins to avoid piercing of the yarns.

TWISTERS AND WINDERS

IN THE WAY of twisting equipment, a new hardened steel traveler is swiveled in a bronze carrier block which slides around in a groove on the inside of the ring. The ring holder lines the ring on the inside, acting as a large oil reservoir (light spindle oil is used) and shield for the lubricated surface.

It may safely be said, from observation of the new coners, that reciprocating guides are losing popularity. To avoid

View on first floor of Textile Hall during Southern Textile Exposition

slipping, and hence chafing, of the yarn on the synthetic traverse rolls, due to the fact that both ends of the cone cannot rotate at the same speed, one new winder places the cone at an angle to the roll in order that it will be driven near the center and pressure will be relieved at the ends, while another employs a conical-shaped roll. To one machine has been applied a new self-threading guide; while another coner, by means of cone arms pivoted below and a new location of the cone away from top center of the roll, avoids an increase of pressure as the weight of the cone builds up.

To the circulating-spindle type of winder has been applied an automatic knot-tying device, giving the machine a capacity of 900 bobbins an hour, as against the previous 660. The operator merely drops the bobbins in a revolving battery, placing the end of each at the center of the knot tyer. The machine automatically finds the end on the cone by means of suction—somewhat as on the automatic spooler—carries it to the new head, ties the knot, and inserts the new bobbin on its spindle.

A new rewinder is designed to remove cotton yarn from dye spool or jack spool at 300 to 450 yd. per min. A cork-covered wood cone is said to produce excellent results when used in connection with high-speed warpers.

SPINNING MACHINERY

PERHAPS IT was natural to expect that eventually the recent trend toward the recirculation of picker-room air would lead to recirculation within the picker itself. This logical step has already been taken, it was disclosed. The picker has been elevated 5 in. from the floor and equipped with a metal bottom, providing a compartment into which the air from the fan is exhausted. From here it passes to the mote box, which is totally inclosed, through two control-damper-equipped flues, one in front and one in back of the box. The upward draft from the front flue forces all the cotton to the top screen, where it is evenly laid to provide a uniformly felted lap.

The gyrator, originally a cotton cleaner, has been made into a combined cleaner and distributor for pickers. One type of equipment for spraying cotton at the pickers has recently been fitted with a finer-spraying head, a more accurate meter, and a blower to deliver clean and dry hot air to the blower head. Another sprayer is now operated without a pump, the unit being hooked into the mill's air line, and means are provided for cutting off the oil flow automatically when the picker stops, without dripping. A new lap-weight indicator, controlled by the relative-humidity of the room, shows the correct figure to give standard weight.

Roving machinery was represented by a cone scientifically designed to harmonize accurately the lag, tension, pressure of presser, and increment of increase; by a table exhibit of the long-draft roving system which folds in the edges of the sliver being drafted; and by another table exhibit of the long-draft roving and spinning system which embodies a loose leather cot around the middle top roll.

An improved bobbin stripper featured a new stripper-blade assembly, an attachment connected to the mill air line to blow out bobbin bores, a waste blower which produces its own air pressure, stripper arms keyed to stripper shafts, and a bobbin elevator eliminating necessity for platform. Similar attachments are applied to a roving-bobbin clearer. Manufacturers of cork cots and assembling machinery have developed a seamless one-piece cot in any length for drawing and comber rolls, an assembly device operated by any compressed air line, and another assembly device operated by a foot pedal.

SHEARING AND FINISHING

CLOTH-ROOM equipment of particular interest included two new automatic shears. One is fitted with a selective finger mechanism designed to open the rests which hold the cloth up to the cutting lines at seams only (not for knots, slubs, or bunches), a metal- or wood-particle finder, a power-driven cloth expander, a slack-selvage compensator, and a stop motion. In the second shear, which embodies what is said to be an entirely new principle of shearing, means for reversing the revolver drum permits one-third faster production with a minimum of unsheared cloth.

Important among the exhibits of dyeing and finishing equipment was an improved tenter with full-floating driving shaft fitted with ball bearings, power-driven width adjustment, and self-contained driving head. Suitable for use on this and other tenters was a new clip constructed without pins or rivets and designed to give longer life to the plate. A silk and rayon cloth inspecting device is equipped with a new speed-reducing unit described elsewhere in this issue.

Manufacturers of textile chemicals placed particular stress upon the proper selection and application of sizing materials. Among new compounds developed for use in bleaching, dyeing and other processes were a new conditioning oil for loose cotton and cut rayon, several chemicals for twist-setting; a reducing agent for sulphur dyes to eliminate tendering of the fiber and to give clearer shades; a material used in conjunction with hydrosulphite to prohibit premature oxidation of vat colors; a series of wetting, penetrating, and emulsifying agents; and an emulsifying oil for treating wool before spinning.

Sewing machines featured in Greenville included an improved portable piece-end machine; a butted seamer applied to a railway stitcher; a high-speed big-bobbin machine fitted with ball bearings on both arm shaft and hook shaft and designed for stitching pillow cases, bedspreads, etc.; and new high-speed over-edgers and over-seamers operating at speeds of 4,500 stitches per minute.

Auxiliary equipment included a new packaging machine for bolts of cloth, towels, etc., which in three seconds crossties single- and double-end wraps, forming a bow-knot. With gears in constant mesh to insure silent operation, a new, light-weight electric, high-speed, rotary calculator runs 600 figures per minute.

New testing devices included a single-strand strength tester with lifting device, an illuminated fabric dissector with cloth-stretching attachment to give loom tension, a magnetically dampened direct yarn-numbering quadrant, a twist tester with take-up device fitted with an auxiliary clamp to give even tension on the yarn, and a dye-absorption testing unit.

KNITTING SHOW ELASTIC...

Exhibits indicate growing importance of rubber yarn and many other trends

IN recognition of the fact that the knitting industry seems bound to make the greatest possible use of rubber yarns in its numerous products, the exhibitors at the 31st Annual Knitting Arts Exhibition, held at the Commercial Museum, Philadelphia, April 22 to 26, made a special point of showing how they can accommodate such yarns on their equipment.

Small hosiery-top ribbers with new or modified laying-in devices were in evidence throughout the knitting-machine exhibits, and one such device was knitting in the covered-rubber yarn for a few needles at both the beginning and end of the lay-in portion to avoid later pulling in of the yarn. An automatic half-hose machine was merrily laying in rubber in its rib top, and a women's seamless-hosiery machine was putting rubber in its welt previous to turning and knitting in that portion of the stocking.

A sewing-machine manufacturer demonstrated how, in his opinion, it is better to sew elastic webbing to a weltless and unseamed knee-length stocking rather than to attach the closed garter after the stocking, with a welt, has been seamed. Because it appears possible that women are, or soon will be, tired of the relatively patternless girdles now offered them, a builder of body machines demonstrated a jacquard latch-needle knitter equipped for both laying in and knitting in.

But devices for knitting rubber were by no means the only interesting new equipment at Philadelphia. Several of the other innovations were individually of great importance. For example—

UNDERWEAR AND OUTERWEAR

A NEW 30-step float-stitch spring-needle machine for underwear, dress goods, etc., can be changed over from one pattern to another in some 5 min., as against the 5 hr. formerly required for such work, the needles being operated through jacks which are in turn controlled by a vertical row of easily adjusted levers located at each feed. Another example was a "scarf" or latch-needle body machine equipped with "three-position" pattern wheels, wherein a high insert gives an ordinary stitch, a low insert gives a tuck and an open slot gives a float, thus permitting an increased variety of patterning without long floats on the back of the fabric. To a "scarf" machine for knitting frill bouclé yarn have been added pattern wheels; and to another of the so-called "scarf" knitters have been applied wheels and suitable feeds for producing terry or loop patterns in two colors.

On the two-cylinder spring-needle rib machine, producing an elastic but rubberless Swiss rib, no changing of the cam settings is necessary, thanks to a depending flange on the inside of the top cylinder which divides the loops. A latch-needle ribber used for Swiss work with tucks has its dial cap split into various numbers of parts to simplify the work of the fixer.

Representative of a new development in hockey-cap knitting was shown a machine which knits one of the fabrics composing the French welt on the cylinder and the other simultaneously on the dial, later transferring one set of stitches automatically from one side to the other for tying in the two fabrics and permitting the knitting of a single fabric for the crown. A simplified jack presser employs forked nibs which snap into position and do away with the heavy cap formerly needed to hold them.

A new bur holder for leaded spring-needle machines is provided with micrometer stitch adjustment to eliminate guesswork. In flat machines a new links-and-links model has a jacquard bar capable of skipping more than one card during one complete course.

HOSIERY KNITTERS

AS USUAL, new half-hose machinery was an outstanding feature of the exhibition. Developments included the knitting of terry cloth on a five-step sinker-reverse-plating automatic machine which knits both rib top and body—a special sinker receiving one yarn in the throat and the other over the top of the nib. The application of a 1-to-4 multiple-needle wrap to the 80-individual-needle-wrap machines, both with and without shogging, has increased their pattern scope. Panel wrapping in eight steps has been applied to plain and 12-step sinker-reverse-plating machines for the lower price brackets. To the split-foot machine has been applied a micro-control mounting for the auxiliary stitch cam, a synchronized tension control for all reciprocating yarns, and means for providing a deeper thrust of the auxiliary sinker cam. The gusset toe has been adapted to the machine in which reciprocation is accomplished by cam action, including the sizes for infant's hose.

An English-rib machine has been equipped with two feeds to give increased production and three-color effects. Another double-cylinder rib-hosiery machine has been provided with a links-and-links attachment which permits patterning by transferring from one cylinder to the other. On the women's circular hosiery machine which turns and knits in the welt, two feeds have been applied, giving both increased production and a "ringless" appearance.

Full-fashioned hosiery machinery was represented by several of the latest single-head machines now built in 60 gage. Auxiliary full-fashioned equipment included a splash pan adjustable for angle, a tension-distributing foot holder with replaceable felt inserts, and a 15-layer coursing pad.

ACCESSORY EQUIPMENT

THE METHOD usually employed for attaching elastic webbing to the tops of knee-length stockings is first to join the elastic with a zig-zag stitch and then to attach the band to the welt. With a new three-needle machine this procedure is reversed, the elastic being attached in one operation without the use of a welt, fold, or seam to a single layer of the hosiery previous to seaming of the leg; the elastic is then joined on a second machine of the standard type. Other new sewing machines included the high-speed lockstitch machine first shown at the New York outerwear show in February; a high-speed feed-off-the-arm chain-stitch machine operating at 4000 r.p.m; high-speed overedging and shell-stitch machines; and an adjustable fly-bar machine for making eyelet-end buttonholes of any length from 1½ to 1¾ in. with or without a fly bar.

New hosiery and outerwear loopers have their sewing mechanism located on the right side to facilitate the work and improve the view of the operator. A needle manufacturer showed a spring-beard type made with a short groove to strengthen the needle and avoid large accumulations of oil, dirt, and lint and the corrosion which such accumulations cause. A new snap fastener for outerwear pierces the fabric with two prongs which do not cut the yarns and hence do not weaken the

material; and a new machine permits both the inner and outer units of the fastener to be applied by one operator.

For producing labels, a machine automatically feeds various widths of gummed or ungummed paper; prints, cuts off, and stacks completed labels at the rate of 150 per minute; and is adaptable to quick changes. Another quick-change machine displayed for the first time is a box-end imprinting press designed to print the ends of boxes at the rate of 60 per minute, taking them from a stack and re-stacking them.

YARN MACHINERY

IN RECENT years the Knitting Arts Exhibition has become something of a throwing arts exhibition. Common to several doubler-twisters shown were 7-in. traverses, indicating that the large-package principle is entering the throwing field. One such machine operating at 10,500 r.p.m. on 12 turns, has each ring and separator swinging with the corresponding spindle bolster in order that all three elements will be in constant alignment with each other; and it also has the feed-roll gearing totally inclosed and its porcelain eyes held to the guide fingers by easily opened wire clamps. New doubler-twisters have accessible and readily adjusted driving mechanism.

A new skein winder employs automatically adjusting spindle bearings for keeping the entire driving surface always in contact. Another spindleless winder made its appearance this year, as did a new spindleless redraw frame, capable, it is said, of operating with a take-up of 500 yd. per minute. A redraw frame which at the show was operating at 1800 r.p.m., with a three-speed transmission provided, rests a wire against the thread; and this, when the machine stops, falls and forces a rubber-surfaced brake against the flanges of the delivery bobbin to prevent further turning. Straight traverse cams have now been applied to winders, twisters, and redraws for avoiding jumping.

An ingenious yarn tension suitable for redrawing and any other use where yarn is delivered over-end, operates without the pressure of disks or any other friction, the yarn passing around a small pulley whose freedom to turn is governed by drag from an electromagnet and hence is susceptible to infinite adjustment. A new traverse bar for skein winders and twisters locates its self-threading guides close to the bobbin to insure accuracy of wind and permits the yarn to run in a straight line from pigtail to bobbin, thus reducing pressure and wear on the porcelain. The ball-bearing retainer rolls on the twister fingers for holding gudgeonless bobbins have been made adjustable to different sizes of flange. A new winder swift particularly suited to covered-rubber yarns, has piston-like arms which simplify the placing-on of skeins and afford uniformly maintained tension as the skeins run down.

In new winding machinery was demonstrated a cotton coner of the grooved-traverse-roll type in which the cones are set at a slight angle to the roll to avoid hard ends and soft centers and the cone spindles are mounted to swing away from the roll as the cones build up to prevent increasing pressure as the weight of the cones increases. A new rayon and silk coner is provided with an endless-belt spindle drive and with oilers on all pulleys. For quillers an easily threaded four-disk tension, offering graduated pressure and suitable for over-end unwinding, has been equipped with a new threading bail for removing kinks in hard-twist yarns.

With one dry heating unit (either electric or steam) and another such unit embedded in a level-controlled water bath, temperature and humidity are accurately maintained in a new rayon conditioner or twist-setter for thrown crepe, weaver's filling, and other synthetic yarns.

FINISHING AND TESTING

OF THE recent developments in processing equipment, one of the most interesting exhibited was a rapid machine, with variable speed and automatic doff, for steaming and finishing all types of tubular knit goods; it is so designed that during one run the fabric is steamed twice and cooled three times, and is wound up cool without pattern distortion. An improved upright finisher has been fitted recently with an exhaust system above the calender rolls to prevent steam from getting on the goods and bowing them, and with an expander to give the exact width required.

Exhibited for the first time was an automatic length-cutting, counting, and laying-up machine for handling knit goods, towels, handkerchiefs, pillow cases, and other materials, giving any pre-determined length of cut and laying up the cut material in dozens or other units on a canvas apron which moves on as soon as a unit is complete. One manufacturer of hosiery-dyeing equipment featured rotary machines in which the cylinders are now spot-welded to give a sturdier and smoother construction. To compensate for any unbalance of the load, a new 17-in. hydro-extractor is spring mounted to absorb vibration.

Several manufacturers of textile chemicals featured compounds for imparting spot-proof and water-repellent finishes by the one-bath method. Perhaps the newest of the other products for use in textile processing was a highly sulphonated olive oil said to be completely soluble in water and resistant to hard water and organic acids.

A new development in equipment for inspecting hosiery was a non-rotating form fitted with "black glass" mirrors to give speedy and accurate inspection. One new type of hosiery-testing apparatus measures the distensibility, recoverability, and stretch-endurability of women's hosiery; while another determines the resistance to wear of hosiery by subjecting the heels and toes to the action of an abrasive material mounted on an oscillating device. An improved textile projector with built-in screen and photographic camera can be manipulated by one operator and does not require a dark room.

A large number of exhibits were devoted to yarns and knitted fabrics, including mercerized yarns so treated as to modify their affinity for dyes and a multi-filament cuprammonium yarn having 1½ filaments per denier.

View of knitting show at Philadelphia

WHAT ENGINEERS FOUND

Of special interest in new equipment at Greenville and Philadelphia Shows

PLANT engineers visiting either the Southern Textile Exposition or the Knitting Arts Exhibition this year found much of interest in the numerous exhibits in which were featured the latest advances in power transmission, humidification, mill lighting and painting, lubrication, and other phases of textile plant operation which come under their jurisdiction. At the Greenville Show, particularly, stress was placed on the engineering phases of textile manufacture, a large percentage of the exhibitors displaying equipment and materials with which the mill engineer and the master mechanic are concerned. In the following report of the new developments of this nature, the descriptions refer to products shown at the Southern Exposition unless it is stated that they were displayed at the Philadelphia Exhibition.

SPINNING-FRAME DRIVES

EASILY THE most significant of recent trends exemplified by the various exhibits is the attention which is now being paid to the improvement of spinning-frame drives. One of the most recent of these developments is a variable-speed, multi-V-belt drive, so designed as to give either automatic or manual control of the yarn speed. This drive embodies variable-pitch sheaves which permit infinite speed control by varying the driving diameter of the sheaves, and an automatic motor base with an indicated-tension device designed to give correct tension at all times by the raising or the lowering of the motor. The sheaves are suitable for individual-motor-driven frames or overhead motor-to-lineshaft drives, making possible a change-over from existing constant-speed drives.

A type of single V-belt, variable-speed drive, which was first announced about four or five months ago, consists of a compact base which may be mounted on the frame; a countershaft operated at constant speed on which is mounted a sheave of adjustable diameter; another adjustable sheave mounted on the cylinder shaft of the frame; manual or automatic speed-changing mechanism; and the V-belt. A third new variable-speed drive for spinning frames utilizes a slip-ring motor plus a device mounted on the frame and connected to a rheostat which changes the speed as the rail moves up and down.

In addition to the drives mentioned above was displayed the improved type of flat-belt short-center drive for spinning frames first exhibited at the Power Show held last December in New York. This design involves a high shelf with two supports which consist essentially of compression springs—one at each side of the frame—to allow the motor to pivot in either direction as dictated by the belt pull, and a third support in the form of a leg located at the outer edge of the shelf and opposite the center of the frame.

POWER TRANSMISSION

LEAK-PROOF automatic oiling casing with silent chain drive for spinning and twisting frames also shown at the Power Show was again featured at the Southern Exposition. One manufacturer exhibited a tension pulley for spinning and twisting; this is designed to save power, permit use of smaller tape, and keep out dirt and lint.

An innovation in variable-speed transmission is a device in which the power is transmitted from the input to the output shaft through a positive chain drive. This speed-change unit consists of two pairs of opposed conical disks, between which a chain transmits power. The effective diameters of each pair of disks can be altered under load to change the speed ratio, without steps, and without dependence upon friction. On changing speed, the self-adjusting chain rises between one set of disks and descends between the other, so that while the input shaft turns at constant speed, the output shaft is adjustable to the desired revolutions per minute. Another new variable-speed power unit, which gives speeds ranging from 500 to 5,000 r.p.m. in fractional-horsepower sizes, and 600 to 3,600 r.p.m. in larger sizes, was featured by one manufacturer and has been adopted as standard equipment on the silk and rayon cloth inspecting machine noted on page 91. This unit can be built with any make of motor, has high starting torque, can be adjusted to desired speed before starting or while running; speeds are selected on a vernier dial; and the unit can be operated by remote control.

Knitting Arts Exhibition, Philadelphia

MOTORS

EXHIBITED FOR the first time was a self-cleaning textile motor designed to prevent accumulation of lint. Features of the motor include removable guards which permit the motor to be opened up for inspection while running. Bakelite shields sealed over the stator coils, interchangeable stators removable as a unit, and one-piece cast-steel base. Another motor of the lint-proof type was shown in operation in a glass case containing swirling cotton agitated by means of a fan. An interesting exhibit was a traveling demonstration unit set up to illustrate the difference in power-

transmission costs with unit drive and modern group drive.

Bearing companies outdid themselves this year in the way of "trick exhibits" featuring optical illusions, precision bouncing, timed rolling, etc. One manufacturer stressed a removable, double felt-seal, completely inclosed ball bearing for pitman rolls, idler pulleys, and other textile machines; another exhibitor showed a series of ball bearings in which the felt seals are integral with the bearings.

An innovation in pressure lubrication for textile machinery consisted of a series of copper tubes and fittings running from a central point to each bearing on a spinning frame head. This enables the operative to grease each bearing quickly and easily, and reduces the possibility of slighting any bearing. Other applications of pressure lubrication included fittings on dobbies, tentering frames, and front-roll stands for spinning frames. In one exhibit there was a demonstration of grease lubrication for ring oil bearings. A constant-level oil control and a loose pulley oiler were among the other new aids to better lubrication. For spindle lubrication, a new series of oils developed specifically for this purpose was featured.

HUMIDIFICATION

ONE manufacturer of humidifying equipment exhibited a new compact air conditioner designed to condition uniformly an area of 10,000 sq.ft., or about 36 ft. in each direction. This is accomplished by means of a new motor arrangement and a new angle through which the liquid is thrown against the fan. A model textile mill, fitted with indicating instruments, was on display in connection with an air-changing device designed to furnish automatic ventilation and yet retain constant humidity. In one exhibit a new self-cleaning humidifier head was featured.

Displayed both at Greenville and Philadelphia, and particularly useful for low-ceiling rooms, is a "trunk system" conditioner which contains a new motor and fan arrangement, automatic damper control, and screen to filter dust and lint from recirculated air; a heater may be placed in the intake to raise the temperature of the room. At Philadelphia a unit humidifier was exhibited which operates on the vapor principle. With this unit, heated water vapor is passed over cooling plates and then, by means of a fan, is thrown out into the room at approximately room temperature and at a relative humidity of about 80%.

RECORDING INSTRUMENTS

INSTRUMENT manufacturers for the most part featured apparatus for giving better control of the warp sizing process. One exhibitor, for example, showed a device developed first for regulating the moisture content of sized warps as they leave the slasher, and suitable also for application to tenters, continuous dryers, etc.; with this system regulation of the amount of moisture left in the textile is obtained by means of a sensitive mechanism which changes the speed of the slasher or other type of dryer as the moisture content of the yarn or fabric shows a variation.

Southern Textile Exposition, Greenville, S. C.

Another instrument manufacturer displayed a complete system for regulating temperature of size in size kettle, temperature and level of size in size box, and temperature of drying cylinders; still another showed a time-temperature controller for cooking size, a unit for maintaining the temperature of size during storage, a two-pen temperature recorder-controller and pressure regulator for drying cans, and a size-box temperature and level control; a fourth manufacturer exhibited a time-schedule controller for size kettles, dye vats, etc. Of interest also was an automatic generator voltage regulator of the rocking-contact type designed to give constant voltage with variable loads. Other new instruments included an electrically operated room-temperature controller, a flowmeter, a recorder for registering room temperatures and humidities directly on the same chart, a temperature recorder-controller, and a potentiometer.

MAINTENANCE DEVICES

PAINT manufacturers adopted a striking way in which to demonstrate the use of their products, showing model houses and complete mill villages painted according to the most modern practice.

Two manufacturers—one at Greenville, and one at Philadelphia—featured the applications of stainless-steel, and at both shows another manufacturer stressed the uses of nickel and its alloys. Noted among the more recent applications of these corrosion-resisting materials were dry cans, tenter clips, cloth expanders, and weaver's knotters.

For stacking bales or boxes, a portable motor-driven elevator was demonstrated featuring inclosed ball bearings to avoid soiling of the goods. A new pushbutton system for freight elevators was introduced which permits complete control of car from both the outside and inside. For transporting light loads, an extra-strong steel-covered fiber truck was on display. Two new automatic scales were shown, both of which deliver printed weight records and thus eliminate mistakes in reading.

At both shows a new high-capacity green-sand-base zeolite water softener was featured. This softener is said to reduce salt consumption by one-third as compared with previous models.

Mercury vapor lamps have been improved in an effort to increase the appearance of "white" light and still retain the visual value of mercury light, and at both expositions a new high-intensity lamp was displayed, which is adapted particularly where high bay lighting is required. Featured at Greenville was a new floodlight recommended for lighting mill grounds; the inside surface of this light is oxidized and no reflector is necessary. There was shown also a combination floor box and pedestal of pressed steel with test block and switch mounted in one case, individual parts of which are obtainable. Other new and improved electrical appliances include corrosion resisting condulets; explosion-proof condulets; and a rounded corner, cadmium-plated, steel cut-out and junction box.

Knee-action scrubbing machines with an up-and-down motion, as well as the conventional circular motion, were demonstrated by a manufacturer of industrial floor cleaners. Non-metallic disk valves, plug disk globe valves for severe duty, a high-pressure thermostatic steam trap, a combination float and thermostatic trap, a curved-face cone belt, an endless card band, a loom binder cushion, and a vice lacer for joining flat belts were among the other new developments which claimed the attention of the mill engineer and the master mechanic at the Greenville Exposition.

"BETTER TOOLS"

Discussed by S. T. A. carders and spinners

AN ECHO of the Greenville Show and of J. E. Sirrine's talk at Greenville, April 12, before the Southern Textile Association, in which he advocated the use of better tools, was heard during the meeting of the Eastern Carolina Division at Raleigh, April 25. "Years ago, when a young fellow," said T. W. Mullins, who led the spinning discussion, "I would try to do a job of carpenter work and wonder why I couldn't do it like a carpenter. But I didn't have the proper tools to work with. That is what we want to discuss here—the tools to work with and the new tools that have been developed."

The meeting, which was presided over by M. R. Harden, opened with addresses of welcome by Col. J. W. Harrelson, president of North Carolina State College, where the meeting was held, and Dr. Thomas Nelson, dean of the Textile School. Business included the adoption of a resolution of regret over the decease of M. R. Vick on Feb. 19. The following officers were elected: P. B. Parks, Jr., Erwin Mill No. 5, chairman; T. W. Mullins, Roanoke Rapids, vice-chairman; W. H. Miley, Jr., Erwin Mill No. 2, secretary; and M. R. Harden, Frank Lanier, J. V. McCombs, G. F. Brietz, and J. T. Hilton, directors.

The technical session began with an address by Frank Rowe, of Saco-Lowell Shops, on the evolution of modern opening and picking machines and layouts. After 1912, he said, it was discovered that even opened cotton after standing in bins for several days reaches a moisture condition comparable to the air condition of the room to a depth of only a few inches. The bale breaker and automatic distributor came along about 1914, primarily to open high-density bales, but they were found advantageous for any cotton. Then came successively the vertical opener, the horizontal cleaner, the lattice opener with 24-in. Buckley cylinders, the tandem feeder, the one-process picker, and finally the opening, blending, and cleaning feeder delivering to a mixing feed table.

A general discussion on carding followed, under the leadership of D. F. Lanier. The first topic was the use of the pin-point or solid-wheel grinder for cylinders and doffers. M. R. Harden, the only carder present who had employed the machine, described it as a series of abrasive disks which pass across the card, slipping between the wires and grinding their sides. Its use is too involved and time-consuming for ordinary grinding, he said; but, employed at intervals of three to five years, it serves to recondition the clothing. For ordinary grinding of flats, Mr. Rowe recommended the use of a concave drum to allow for the sag in the flats.

The life of clothing was reported to vary from eight to 23 years—and, in one example offered, to as long as 32 years. It was pointed out that the main factor in the life of card clothing is the care taken of it. The modern practice of applying the clothing without redrawing it after a short period of service was severely criticized by some carders present as leading to looseness of the foundation; but others declared that if the cylinder is warm during the initial application and the clothing is first allowed to lie loose in the room to pick up what is to be its normal moisture content, no trouble will result from the one-time application.

Controlled-draft drawing next came up for discussion. Mr. Harden stated that, although at first he found trouble in getting the right tension to avoid an increase in weight of some 8 or 9 grains from the beginning of the lap to the end, he overcame this trouble by applying a new gear on the back and now feels that the process is "a vast improvement over the old drawing." P. B. Parks, Jr., expressed the opinion that with the new process "so far as uniformity is concerned you gain practically nothing, but if you are tearing about one-half of your card room out and throwing it away, you have got to . . . . straighten those fibers" and that under these circumstances the new process affords a necessary saving. It was pointed out that the process eliminates piecings and the troubles which they cause in later operations. Opinions differed on the advisability of using only one process of regular drawing, but the majority seemed to feel that one process gives results comparable to or better than two processes.

Mr. Rowe described, on request, the new "controlled-draft" or long-draft roving process which folds in the edges of the sliver; and, he added, "I have seen report after report showing, six, seven, or ten doffs without a single end down. That means elimination of piecings." Mr. Lanier reported having witnessed a drafting of 40 from 62-grain sliver by the new process.

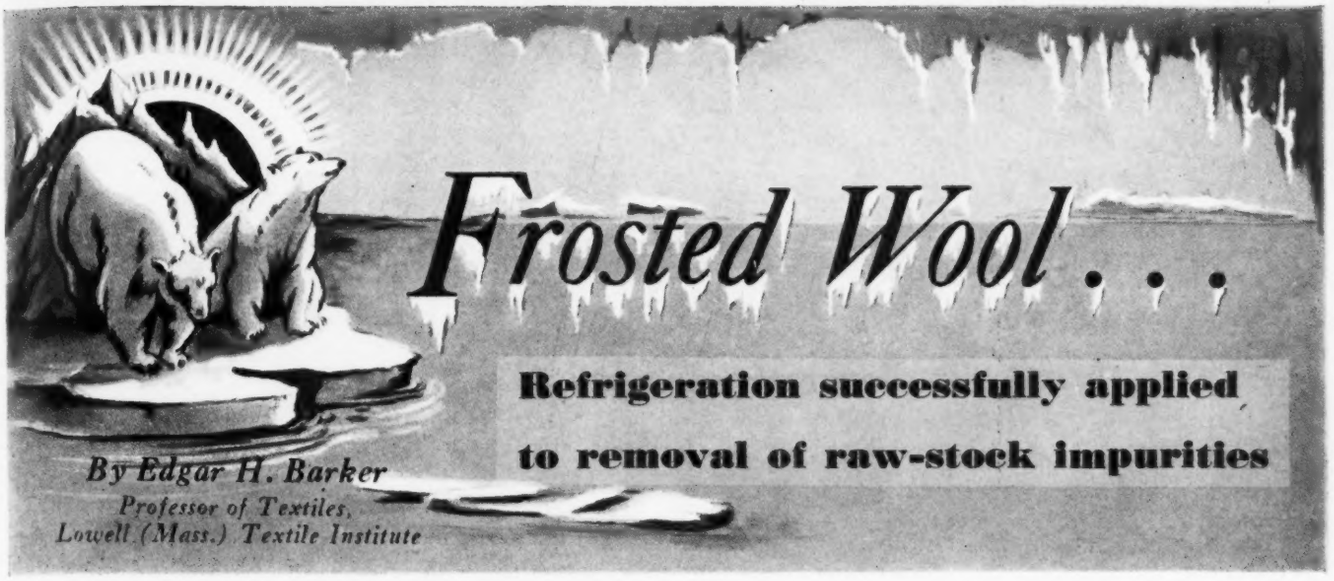
In the second part of the technical discussion four spinners reported using cork rolls; and eight, sheepskin or calfskin rolls. Yarn numbers reported on cork ranged from 3s to 17s, and one spinner stated that his rolls have been running nearly twelve months without rebuffing.

Only four spinners reported using long draft. Mr. Parks, one of them, said, "We saved the labor, power, investment, and upkeep on one process of roving and were able to produce a better, more uniform, and more elastic yarn on long-draft spinning, with the other changes that we made."

Mr. Combs reported having seen a hosiery-yarn mill drafting from 14 to 19.5 from 4- and 4.5-hank roving having a twist of from 1.60 to 1.75 times the square root. Mr. Rowe pointed out that long staple "breaks" easier and permits higher roving twists, but that "if a mill is ordinarily running as high twist as that, we suggest that they lower the spindle speed and take out enough twist to maintain their front-roll speed." He added that new spinning takes two and one-half to three years to pay for itself, while a long-draft changeover "runs as low as a year and a half." Other roving-twist multipliers for long draft reported were 1.15 to 1.20.

Three spinners stated that they were using variable-speed drives. One declared that preliminary tests were showing a 7% increase in production on warp yarn and he was wondering how fast his spindles could be run. "We prefer on our plain-bearing spindles," said Mr. Rowe, "to see the top speed around 10,000. Ordinarily the limit is the speed the traveler will stand."

The guests attended the school's style show.



Frosted Wool . . .

Refrigeration successfully applied to removal of raw-stock impurities

By Edgar H. Barker
Professor of Textiles, Lowell (Mass.) Textile Institute

◆ *Enter the climate of the Arctic to wool manufacture. For a considerable period there have been many rumors and much speculation regarding the development at Lowell Textile Institute of a process for removing the impurities in raw wool through freezing and dusting out the grease which holds these impurities to the fiber. In this article Professor Barker, who has supervised this interesting and perhaps revolutionary development from its commencement to its successful conclusion, offers the first authentic description of the process to be published. In addition to being a discussion of Frosted Wool, the article is an excellent treatise on raw-stock impurities.*

"FROSTED WOOL" is the name given to the newly discovered process which eliminates substantial and worthwhile amounts of grass, burrs, seeds, chaff, shive, pitch, tar, paint, grease, and earth impurities from sorted grease wool (sheared or pulled) and other similar animal fibers. The process is based on the established fact that the natural oily grease with which wool and similar animal fibers are lubricated by nature during growth will congeal and become solid at certain temperatures below zero, Fahrenheit.

In this congealed or frozen state the wool grease is dry, hard, and brittle, and not greasy or sticky, and is shattered to dust by mechanical agitation. The frozen fibers can then separate one from the other and permit the vegetable matter to be thrown out through the screen of a duster. The oil in oil-branding paints will also freeze and, when frozen, will make the paint brittle or friable. When in this state the paint acts very much like the frozen grease and can easily be shattered and eliminated by mechanical agitation.

It is well known to wool men that wool fiber in the grease is not damaged by being subjected for long periods of time to subnormal temperatures. It is also a matter of common knowledge that clean wool, or any clean-wool product, is not damaged by freezing.

Range sheep in some of our Northwestern States, like the Dakotas, Montana, and Wyoming, spend their whole life in the open, exposed to the elements and prolonged temperatures ranging from 120° F. in summer to 60° below zero in winter. The annual clip from these four States averages more than 80 million pounds, of which, several million pounds are frequently stored in unheated barns and sheds for one or more years, because of no market, or in anticipation of a more favorable one, before being shipped to the Eastern wool merchants. There is no evidence of damage to the wool by these repeated freezings and thawings, either while on the sheep's back

Comparative Results of Regular Wool Treatment and Frosted Wool Treatment of Identical Lots of Wool

	62s Blend		56s Blend		¼ Blood	
	Untreated %	Frosted %	Untreated %	Frosted %	Untreated %	Frosted %
Grease Wool	100.00	100.00	100.00	100.00	100.00	100.00
Vegetable Matter	.66	.66	.88	.88	2.13	2.13
Wool after Frosting	.....	71.40	.....	70.50	.....	79.00
Vegetable Matter in Frosted Wool	.....	.25	.....	.14	.....	.62
Carding						
Waste Dusted	.65	.71	.84	.67	1.96	1.94
Strips Dusted	.30	.27	.....	.....	.27	.26
Burr Dusted	.54	.60	.55	.55	.89	.84
Comb Bits	.05	.03	.....	.....	.61	.54
Total Waste	1.54	1.61	1.39	1.22	3.73	3.58
Noils on Gr. Wt.	4.62	5.01	3.20	4.07	6.70	6.50
Top on Gr. Wt.	29.54	29.32	40.89	40.28	40.20	41.00
Total Usable Fiber	35.70	35.94	45.48	45.57	50.63	51.08
Vegetable Matter in 5 Yd. Top	66 Pcs.	18 Pcs.	92 Pcs.	15 Pcs.	137 Pcs.	49 Pcs.

Note: Practically all pieces of vegetable matter in treated top are less than $\frac{3}{16}$" long.

Raw-Stock Impurities

PROFESSOR BARKER describes the impurities in wool as follows:

The problem of freeing sorted wool and other similar fibers, while in the grease, from the natural impurities produced by the animals themselves has always been easily solved.

Neither the scouring nor the naphtha process, however, will eliminate the vegetable matter, or the pitch, tar, or paint, if any or all of these unnatural impurities are present. Paint or tar used for branding the animals can be clipped from the paint sort made by the sorter—a method which is expensive, wasteful, and never entirely successful. Depainting and depitching can be done on the scoured wool or noils by passage through a bath containing a suitable solvent; but the process, while effective, is very expensive. Vegetable matter can be substantially eliminated from wools, noils, or fabrics, by carbonizing; but this method is expensive and harmful to the product, and wherever used is acknowledged to be a necessary evil. Depainting, depitching, and carbonizing are chemical processes which require elaborate and expensive equipment with high maintenance charges.

Burr-picking machines are commonly used for removing vegetable matter from woolen wools; and burring devices, such as burr guards, Morrel rolls, and Harmel rolls, are commonly used on worsted cards for removing vegetable matter from combing wools. But the fiber is damaged by all such devices; and the by-products produced contain excessive amounts of vegetable matter mixed with fiber, which must be removed eventually.

That the burring devices on worsted cards do not entirely eliminate vegetable matter is very evident from a casual examination of the card sliver. That there is nothing on any backwasher or gill box to remove vegetable matter is evident from examination of the material entering the combs. That all the vegetable matter in the material entering the combs, such as the Noble, Holden, French, Lister, and hybrid combs, is not transferred to the noil is evident from the age-old custom of counting and reporting the number of pieces of vegetable matter, as well as neps, in 5 yd. of finished top as a measure of quality of the combing, with definite standards and tolerances as to what constitutes a good delivery. That the vegetable matter in top does not all fall out, or is not thrown out, in drawing and spinning, or in any of the subsequent processes in worsted-fabric manufacture, is the sole reason for the expensive hand-specking, speck-dyeing, carbonizing, or penciling in the piece. Some noils and recombing noils may be free enough to be used in certain woolen fabrics or products, but too often they require carbonizing and depainting.

The modern burr picker for woolen wools breaks the fiber and does not remove all the vegetable matter. An examination of the card strippings, droppings, and burr waste from woolen cards and the yarn from mules and frames proves this. Worsted wools are never burr-picked because of the increased noilage produced.

A small amount of vegetable matter is permissible in some woolen fabrics; but its discernible presence is prohibited in the majority of fabrics, which must be hand-specked, speck-dyed, penciled, or carbonized to conceal or remove it. Vegetable matter can be hidden or disguised by speck-dyeing, which can be used on piece dyes only, and this concealment is a subterfuge and a mild form of fraud; or it can be painfully and patiently picked out of the finished fabric by hand, piece by piece, which is the most costly of all methods. The fact that hand-specking is done at all is proof of the lack of success of any of the other existing methods of removing vegetable matter.

The logical place to eliminate vegetable matter, paint, or tar is at the beginning and not at the end of the many processes of manufacturing woolen and worsted products.

Whether the sheep are range, barn, paddock, or pasture fed, the wool will contain vegetable matter, although the amount and character may vary extremely. Naturally, vegetable matter differs in different countries and different parts of the same country. In general, however, it may be divided into grasses, seeds, parts of seeds, weeds, and burrs.

Some of the burr-bearing plants have excellent food value for sheep, but from a manufacturer's standpoint they are all pests.

The ordinary cockle burr and the bean burr are hard and easily removed when few in number, but they are a menace to the wool grower and greatly detract from the value of the wool when they literally plaster the whole fleece. The spiny cockle burr, yellow-star thistle burr, horehound burr, star burr, sand burr, trefoil burr, and burr clover (mestiza or spiral burr) are all pests, particularly the trefoil and mestiza. Wire grass, corkscrew grass, pip-gut or broncho grass, foxtail or squirreltail grass, the filarees (blue stem and red stem), and beggar lice, when present, automatically throw the wool down into the defective class.

The spiral or mestiza burr has been called the sheepman's best friend and worst enemy. It is the seed of the burr clover plant, which will thrive and multiply on land on which practically nothing else will grow. It has a very high food value, and the sheep relish it. During the dry season the plants dry up and blow away, leaving the ground covered with the tiny burrs which the sheep eat. The presence in wool of the burrs is an absolute bane, as they will uncoil and straighten out in processing and appear in the ultimate fabric as an integral part of the yarn.

Alarmingly increasing amounts of splendid wool contaminated with these burrs come from California, Arizona, Texas, and other Southwestern States in the U. S. A., South America, South Africa, and Australasia. Some of the foreign wools are so burry that they are rarely imported into the United States, being sold to manufacturers in Bradford (England), France, and Belgium, who are skilled in reclaiming the fiber.

or in storage. Some of the stored fleeces may be damaged by moths or other vermin, but not by freezing, as the wool fiber itself cannot be frozen and extreme low temperatures have no effect on its physical structure or chemical composition.

This fact has been verified and checked by one of America's outstanding microscopists who has examined the cells in the inside and the scales on the outside of many fibers subjected to the Frosted Wool Process, and has compared these fibers with untreated fibers. As the result of his examination, he has certified to the fact that the Frosted Wool Process produces no change in the physical structure of the fiber.

While the process does not remove all the grease, vegetable, or other foreign matter from grease wool and must in most cases be followed by scouring, degreasing, and washing, to produce commercially clean wool, it does eliminate before beginning the usual mechanical processing from 30 to 90% of the total normal shrinkage of the grease wool, which includes from 60 to 94% of the vegetable matter (Figs. 1, 2, and 3) and from 30 to 70% of the grease (Fig. 4).

Frosted grease wool after being scoured has a much better color than the ordinary scoured wool; and naturally the top, noil, yarn, and fabrics have better color. Wool which is normally cream or yellow white becomes a blue white and in many cases appears to have been bleached or blued. This change in color is not a chemical one, but is due wholly to the fact that the outside of the fiber has been freed of grease and filth and does not retain the stain which is present in the ordinary scouring liquors.

The principle of the process is very simple. The machinery is not complicated and consists of any standard refrigerating unit and a refrigerating room containing all the cleaning machinery (Fig. 5).

The refrigerating machine has a rated capacity of approximately 27 tons, which will produce and maintain an air temperature of about 35° below zero F., while the full load of from 1,000 to 1,500 lb. of wool per hour is being processed.

The refrigerating room (Fig. 5) is an inclosure 40 ft. long by 12 ft. wide and 12 ft. high, with walls, ceiling, and floor of 9-in. cork. The equipment has been designed in such a way that, if desired, it can be in-

stalled in place of the first scouring bowl of a scouring train.

The grease wool is elevated and fed by a standard feeder to the top of the cold chamber, where it enters through a pair of sealing rolls, which exclude the warm air. The wool drops onto the freezing conveyor, which is 20 ft. long, with coils above carrying the refrigerant and fans below for circulating the air through the coils and the wool. The wool remains on the freezing conveyor for a period of from 3 to 7 min.

At the end of the conveyor the wool drops onto the feed sheet of a specially designed and constructed intermittent batch duster (cleaning machine), in which it remains for a few seconds. The frozen foreign matter is thrown out of the wool through screens in the duster and is carried away and discharged from the room by a continuously operating conveying system. The cleaned fiber is intermittently discharged from the duster and taken away by a condenser, which drops the wool into sealing rolls through which it is discharged from the cold room without the loss of cold air. This duster cannot and will not roll or knot the wool.

The screens do not become clogged with grease or fiber, due to the dry state of the materials at this low temperature.

No operator is required in the freezing chamber during the processing, as the machines are synchronized and equipped with automatic stop motions. The period of treatment in the cleaning machine, which is determined by the character and quantity of vegetable matter and other impurities, the character of the wool, and the results sought, can be instantly changed by a control located in any desired place outside of the chamber.

The material emerging from the Frosted Wool Process is dry and can be immediately scoured, bagged, stored, or shipped as if it were greasy or clean wool.

The process has not yet been commercialized for the treatment of noils, burr waste, or scoured wool. As originally conceived, the Frosted Wool Process was expected to remove vegetable matter from scoured defective wools, while in the wet state; but as developed, the same final objective has been reached by treating the original grease wool, rather than scoured wool. The treatment of grease wool has the added advantage of

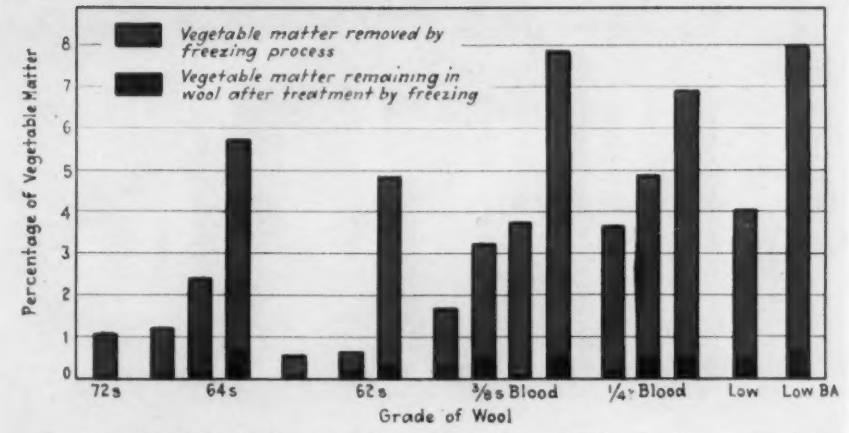


FIG. 1 - Vegetable Matter in Typical Wools Before and After Treating by Frosted Wool Process

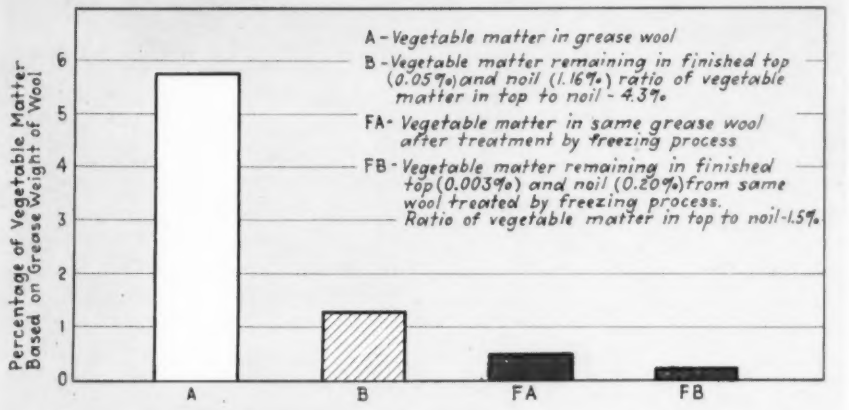

A - Vegetable matter in grease wool
B - Vegetable matter remaining in finished top (0.05%) and noil (1.16%) ratio of vegetable matter in top to noil - 4.3%
FA - Vegetable matter in same grease wool after treatment by freezing process
FB - Vegetable matter remaining in finished top (0.003%) and noil (0.20%) from same wool treated by freezing process. Ratio of vegetable matter in top to noil - 1.5%
Percentage of Vegetable Matter Based on Grease Weight of Wool
0
1
2
3
4
5
6
A
B
FA
FB

FIG. 2 - Effectiveness of Removing Vegetable Matter by Freezing Process

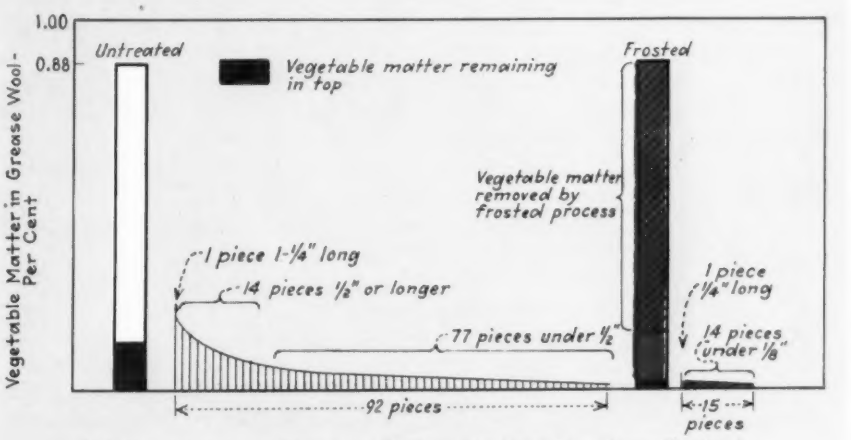


FIG. 3 - Number of Pieces in 5 yd. of Top from 3/8s Domestic Wool

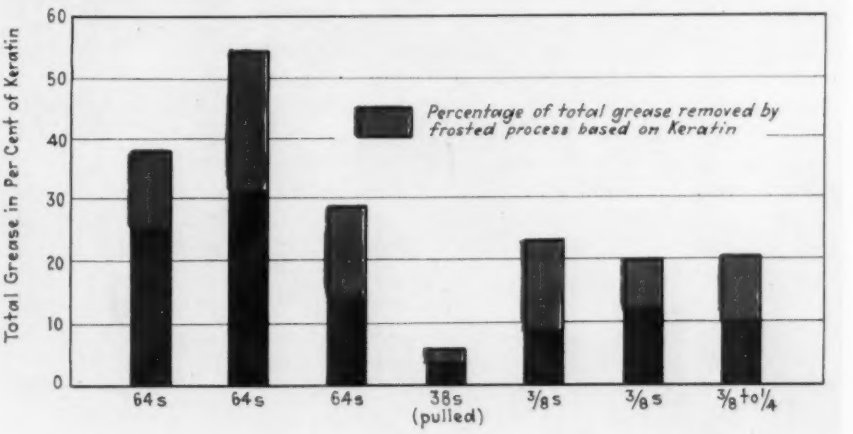


FIG. 4 - Grease Removed from Several Typical Wools by Frosted Wool Process

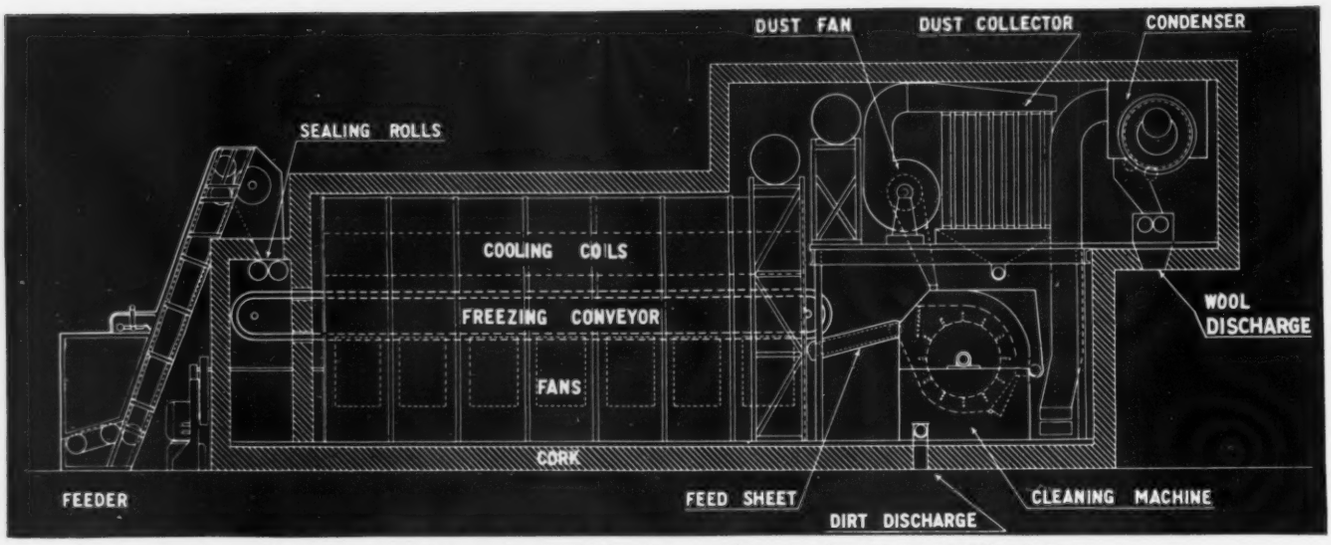


Fig. 5. Diagram of freezing and dusting equipment for Frosted Wool Process

removing, in addition to vegetable matter, substantial amounts of other foreign matters, such as grease, paint, pitch, tar, and earth impurities from the wool before it enters the scouring bowls, or degreasing and washing plant; thus enlarging the scope of the process to make it applicable not only to defective wools, but also to all so-called free wools and wools which require special treatment before they can be scoured, such as cotted fleeces, cotts, etc.

The development and perfection of the Frosted Wool Process (a trade name) has been carried out at the Lowell Textile Institute, Lowell, Mass., during the last three years. The work has involved the use of the research facilities of the institute in developing the machinery and in determining the effect of the Frosted Wool Process on all the physical properties of wools. A full commercial-size Frosted Wool cleaning unit, having a capacity of from 1,000 to 1,500 lb. of grease wool per hour, was installed in the institute last year and is now in operation.

During the last year about 500,000 lb. of grease wool, containing various kinds and amounts of vegetable matter in grades ranging from carpet to 72s cape, in lots of from a few bags to 20,000 lb., have been treated by the Frosted Wool Process in this unit and returned to the mills for converting into clean wool, top, yarn, woolen and worsted fabrics, and hardened felt.

In practically all cases duplicate lots of wool were kept by the mills and processed in the usual manner for the purpose of developing comparative data. Careful records were kept of general quality, yields, shrinkages, amounts, and values of products and by-products, strengths, staple length, vegetable matter, dyeing quality, handle, color, costs, economies, etc. Several examples of these data are given in the table on page 97.

The total operating cost of the Frosted Wool Process, including depreciation but not including royalty, is less than one-half of a cent per pound on the weight of the wool to be processed.

From the very complete line of samples and results received from the mills covering these tests, and the exhaustive data and samples accumulated during the thousands of tests made in developing the Frosted Wool Process, the following advantages have been and can be demonstrated:

1. In the final analysis, from grease wool to finished fabric, using free wool, defective wool, or off sorts, alone or in combination, the question of the use of the Frosted Wool Process, as compared with the usual method of processing, is solely one of economic balance, with the difference very positively in favor of the Frosted Wool Process.

2. In scouring alone, the amount of water, soap, alkali (if used), steam, time required, and pollution of the scouring liquor is materially reduced. In the case of some carpet wools, so much grease and foreign matter are removed that the scouring process can actually be omitted.

3. All noils have increased in value due to the lessened vegetable, paint, and other foreign-matter content, and most of them can be used for woolen woven products and hardened felts without carbonizing.

4. All tops have the vegetable-matter count materially reduced, in some cases almost to the vanishing point.

5. All top and noil have better color and feel, and top has more bloom.

6. All yarns, both worsted and woolen, show greater elongation before reaching the breaking point.

7. Yarns made from Frosted Wools show greater uniformity in breaking strength, with less variation between the maximum and minimum breaks, than regular yarns made from the same wools.

8. Some wools, yarns, and fabrics show deeper color when dyed, with the same amount of dyes and chemicals.

9. Specking is reduced or eliminated; and speck-dyeing is used only to cover cotton or artificial silk picked up in processing, if used at all.

10. The felting or fulling property of the wool is not affected by the process.

11. The pollution of streams from waste-scouring liquors is reduced.

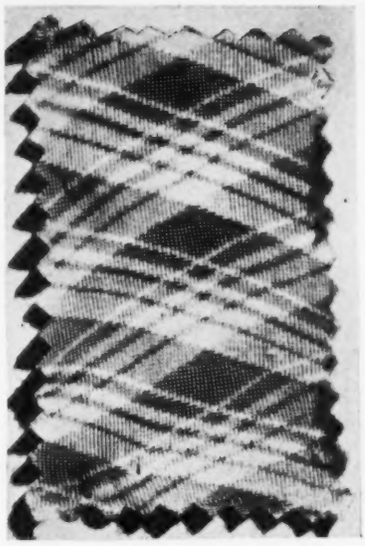
12. There are intangible savings in maintenance of scouring, carding, combing, and spinning machinery and in general processing.

13. Low-priced defective wools are converted into equal or better than free wools as far as vegetable matter is concerned at low cost and with little or no damage to the fiber.

14. The process is equally applicable to wools for the woolen, worsted, felt, and carpet industries.

ADVERTISING PAGES REMOVED

Prevention of Creases



Is most difficult problem in dyeing viscose-acetate milanese

By L. A. Jordan

OF THE various types of milanese fabrics containing synthetic yarns, one which is becoming increasingly popular is that made from a mixture of viscose and acetate yarns. All-acetate milanese, dyed in solid shades, has been noted for its soft, suede-like handle and pleasing appearance. Milanese made from dull-luster viscose and acetate yarns has the same characteristics. Typical of the viscose-acetate fabrics is that with the diagonal, two-color effect shown in the accompanying illustration.

Generally, a milanese fabric of this type is knit to a width of about 70 to 80 in. and is required to be finished 54 in. wide. Milanese is extremely susceptible to creasing, and once it has developed crease marks, it is difficult if not impossible to remove them. In order to avoid this defect, it is essential that the fabric be scoured and dyed under such conditions that it does not run in the same folds for any considerable length of time.

The first operation is that of stitching the two edges together so that the fabric is in the form of a long tube with the face inside. This stitching can be done on a chainstitch machine having an attachment designed to remove the curl or roll in the selvages as they pass under the needle. At this stage it is advisable to stretch the tube of fabric in length so that it will accommodate itself better to the stretching which it will receive during scouring and dyeing.

Scouring is carried out in a reel machine, using a solution of soap, to which can be added one of the newer fat-emulsifying agents. The use of the latter is beneficial, since there is often present in the fabric a considerable number of oil stains from the knitting machine. In order to avoid drag marks and other defects, it is important that the machine be free-running and in good mechanical condition throughout. After scouring, the fabric should be of a good, white color, and subsequent bleaching seldom is necessary. Sometimes, however, for bright blue and pink shades the best possible degree of whiteness is required. In this case the fabric can be bleached with sodium hypochlorite in the same machine as was used for scouring.

Dyeing also usually is conducted in the same machine as was used for scouring. After the goods have been scoured and rinsed, a fresh bath is prepared with about 2½ lb. of soap to 100 gal. of water. Both the viscose and acetate dyes are added to this liquor, and dyeing is commenced. In selecting dyes, one should avoid acetate colors which stain the viscose excessively and viscose dyes which stain the acetate. Otherwise it will be difficult to obtain the clear-cut pattern which is desired. The dyes should be well pasted with hot soap liquor containing a dispersing agent before they are added to the dyeing machine; otherwise there is a possibility that dye specks will be found on the dyed fabric, and these are extremely difficult to remove except by bleaching.

In dyeing acetate fabrics of any type in a reel machine there is often a marked tendency for the fabric to dye streakily, owing to the slow-dyeing properties of cellulose acetate. In order to minimize this danger, the writer prefers to start the dyeing at a low temperature and gradually raise it nearly to boiling point. Actually it is not possible to maintain the bath at much more than 90° C., since a large surface of the solution is exposed to the air.

Viscose rayon absorbs dyes quickly, and the full amount of the dye for this fiber should not be added during the initial stages of dyeing; the cellulose acetate dyes much more slowly, so that sufficient time must be allowed for this nearly to reach its required depth of shade before one attempts to bring the viscose rayon to the desired shade. Presence of xylene in the dyebath is advantageous, since it has a slight swelling action on the acetate and thereby promotes its absorption of dyes.

It will be found that not less than two hours must be allowed for dyeing. If the fabric is brought to shade in less than that time, it is probable that a large amount of valuable acetate dye will find its way down the drain in the form of unexhausted dye liquor. When the desired shade is obtained, the fabric should be well washed and then treated in a solution of sulphonated oil or one of the various proprietary softening agents now available.

As previously mentioned, milanese is particularly susceptible to creasing during the scouring and dyeing processes. For this reason the fabric should be opened out as much as possible while it passes over the reel during the scouring and dyeing processes. The opening out of the goods is carried out by hand by an operative who is provided with rubber gloves. The fabric is then extracted and stretched to its required length and width. Ordinarily a stationary tenter frame is employed, and drying is effected by a flow of hot air over the fabric, or by means of steam pipes placed below the cloth. Occasionally, however, automatic tenters are used. Of course, the sewing thread holding the two selvages together must be withdrawn before the fabric can be tentered. The main precautions to be taken in tentering are to avoid too high a temperature and excessive tension. Ordinarily tentering completes the processing of viscose-acetate milanese, although it sometimes is necessary to calender the goods to obtain the exact finish desired.

Production

On silk and rayon looms

THESE tables, compiled by Carl C. Mattmann, Sr., give the weekly production, in yards, of a silk or rayon loom, operating at 140 picks per minute, for ranges of efficiency, hours per week, and picks per inch. To secure production figures for looms operating at other than 140 picks, divide the yardage figures given in the tables by 140 and multiply by the number of picks per minute operated.

30-Hour Week—Loom running at 140 picks per minute

Picks per inch.	Picks per yard.	80% Efficiency. Yards.	75% Efficiency. Yards.	70% Efficiency. Yards.
28	1,008	200.0	187.5	175.0
32	1,152	175.0	164.0	153.1
36	1,296	155.5	145.8	136.1
40	1,440	140.0	131.3	122.5
44	1,584	127.2	119.3	111.3
48	1,728	116.6	109.3	102.0
52	1,872	107.6	100.9	94.2
56	2,016	100.0	93.7	87.5
60	2,160	93.3	87.5	81.6
64	2,304	87.5	82.0	76.5
68	2,448	82.5	77.2	72.0
72	2,592	77.7	72.9	68.0
76	2,736	73.6	69.0	64.4
80	2,880	70.0	65.6	61.2
84	3,024	66.6	62.5	58.3
88	3,168	63.6	59.6	55.6
92	3,312	60.8	57.0	53.2
96	3,456	58.3	54.6	51.0
100	3,600	56.0	52.5	49.0
104	3,744	53.8	50.4	47.1
108	3,888	51.8	48.6	45.5
112	4,032	50.0	46.8	43.7
116	4,176	48.2	45.2	42.2
120	4,320	46.6	43.7	40.8
124	4,464	45.1	42.3	39.4
128	4,608	43.7	41.0	38.2
132	4,752	42.4	39.7	37.1
136	4,896	41.1	38.6	36.0
140	5,040	40.0	37.5	35.0
144	5,184	38.8	36.4	34.0

35-Hour Week—Loom running at 140 picks per minute

Picks per inch.	Picks per yard.	80% Efficiency. Yards.	75% Efficiency. Yards.	70% Efficiency. Yards.
28	1,008	253.3	218.7	204.1
32	1,152	204.1	191.4	178.6
36	1,296	181.4	170.1	158.7
40	1,440	163.3	153.1	142.9
44	1,584	148.4	139.1	129.9
48	1,728	136.1	127.6	119.0
52	1,872	125.6	117.7	109.9
56	2,016	116.6	109.3	102.0
60	2,160	108.8	102.0	95.2
64	2,304	102.0	95.7	89.3
68	2,448	96.0	90.0	84.0
72	2,592	90.7	85.0	79.3
76	2,736	85.9	80.5	75.2
80	2,880	81.6	76.5	71.4
84	3,024	77.7	72.9	68.0
88	3,168	74.2	69.6	64.9
92	3,312	71.0	66.5	62.1
96	3,456	68.0	63.8	59.5
100	3,600	65.3	61.2	57.1
104	3,744	62.8	58.8	54.9
108	3,888	60.4	56.7	52.9
112	4,032	58.3	54.6	51.0
116	4,176	56.3	52.8	49.2
120	4,320	54.4	51.0	47.6
124	4,464	52.6	49.3	46.1
128	4,608	51.0	47.6	44.6
132	4,752	49.4	46.4	43.3
136	4,896	48.0	45.0	42.0
140	5,040	46.6	43.7	40.8
144	5,184	45.3	42.5	39.6

40-Hour Week—Loom running at 140 picks per minute

Picks per inch.	Picks per yard.	80% Efficiency. Yards.	75% Efficiency. Yards.	70% Efficiency. Yards.
28	1,008	266.6	250.0	233.3
32	1,152	233.3	218.7	204.1
36	1,296	207.4	194.4	181.4
40	1,440	186.6	175.0	163.3
44	1,584	169.6	159.0	148.4
48	1,728	155.5	145.8	136.1
52	1,872	143.5	134.6	125.6
56	2,016	133.3	125.6	116.6
60	2,160	124.4	116.6	108.8
64	2,304	116.6	109.3	102.0
68	2,448	109.8	102.9	96.0
72	2,592	103.7	97.2	90.7
76	2,736	98.2	92.1	85.9
80	2,880	93.3	87.5	81.6
84	3,024	88.8	83.3	77.7
88	3,168	84.8	79.5	74.2
92	3,312	81.1	76.0	71.0
96	3,456	77.7	72.9	68.0
100	3,600	74.6	70.0	65.3
104	3,744	71.7	67.3	62.8
108	3,888	69.1	64.8	60.4
112	4,032	66.6	62.5	58.3
116	4,176	64.3	60.3	56.3
120	4,320	62.2	58.3	54.4
124	4,464	60.2	56.4	52.6
128	4,608	58.3	54.6	51.0
132	4,752	56.5	53.0	49.4
136	4,896	54.9	51.4	48.0
140	5,040	53.3	50.0	46.6
144	5,184	51.8	48.6	45.3

45-Hour Week—Loom running at 140 picks per minute

Picks per inch.	Picks per yard.	80% Efficiency. Yards.	75% Efficiency. Yards.	70% Efficiency. Yards.
28	1,008	300.0	281.2	262.5
32	1,152	262.5	246.0	229.6
36	1,296	233.3	218.7	204.1
40	1,440	210.0	196.8	183.7
44	1,584	190.9	178.9	167.0
48	1,728	175.0	164.0	153.1
52	1,872	161.5	151.4	141.3
56	2,016	150.0	140.6	131.2
60	2,160	140.0	131.2	122.5
64	2,304	131.2	123.0	114.8
68	2,448	123.5	115.8	108.0
72	2,592	116.6	109.3	102.0
76	2,736	110.5	103.6	96.7
80	2,880	105.0	98.4	91.5
84	3,024	100.0	93.7	87.5
88	3,168	95.4	89.4	83.5
92	3,312	91.3	85.5	79.8
96	3,456	87.5	82.0	76.5
100	3,600	84.0	78.7	73.5
104	3,744	80.7	75.7	70.6
108	3,888	77.7	72.9	68.0
112	4,032	75.0	70.3	65.6
116	4,176	72.4	67.9	63.3
120	4,320	70.0	65.6	61.2
124	4,464	67.7	63.5	59.2
128	4,608	65.6	61.5	57.4
132	4,752	63.6	59.6	55.6
136	4,896	61.7	57.9	54.0
140	5,040	60.0	56.2	52.5
144	5,184	58.3	54.6	51.0

50-Hour Week—Loom running at 140 picks per minute

Picks per inch.	Picks per yard.	80% Efficiency. Yards.	75% Efficiency. Yards.	70% Efficiency. Yards.
28	1,008	333.3	312.5	291.6
32	1,152	291.6	273.4	255.2
36	1,296	259.2	243.0	226.8
40	1,440	233.3	218.7	204.1
44	1,584	212.1	198.8	185.6
48	1,728	194.4	182.2	170.1
52	1,872	179.4	168.2	157.0
56	2,016	166.6	156.2	146.8
60	2,160	155.5	145.8	136.1
64	2,304	145.8	136.7	127.6
68	2,448	137.2	128.6	120.0
72	2,592	129.6	121.6	113.4
76	2,736	122.8	115.1	107.4
80	2,880	116.6	109.3	102.0
84	3,024	111.1	104.1	97.2
88	3,168	106.0	99.4	92.7
92	3,312	101.4	95.1	88.7
96	3,456	97.2	91.1	85.0
100	3,600	93.3	87.5	81.6
104	3,744	89.7	84.1	78.5
108	3,888	86.4	81.0	75.6
112	4,032	83.3	78.1	72.9
116	4,176	80.4	75.4	70.4
120	4,320	77.7	72.9	68.0
124	4,464	75.2	70.5	65.8
128	4,608	72.9	68.3	63.8
132	4,752	70.7	66.2	62.0
136	4,896	68.6	64.3	60.0
140	5,040	66.6	62.5	58.3
144	5,184	64.8	60.7	56.7

Do's and Don'ts

In selection and application of sizing compound for viscose and acetate yarns

By Edgar S. Genstein and S. Newman
Kem Products Co., Newark, N. J.

OF RECENT years, there has been a trend toward gelatin-base sizings for rayon. These sizings include ingredients having adhesive properties (often combinations of other adhesives with gelatin), special softeners, preservatives, deodorants, and penetrants where needed. Gelatin, as used in the mills on rayon warps, runs the entire gamut from cheap common glue to high-test edible gelatin. The source, quality, and strength of gelatin vary between exceptionally wide limits. The number of other possible ingredients is very large; the number of combinations is infinite. It is often necessary to use several different grades of gelatin in the same sizing compound in order to standardize its uniformity.

In making the sizing compound, not more than 1% variation should be permitted in the final result. Certain ingredients are degraded by prolonged cooking. Temperatures should be as low as practical, and time of exposure of sizing compounds to high temperatures, either in their manufacture or in the mill, should be as short as possible. Don't keep size kettles boiling for periods of hours.

Sizing compounds should be filtered through fine screens (under pressure if in concentrated stock form) to remove the ever-present foreign matter—bits of wood, particles of grit and dirt, fibers from bags, occasional nails, etc. Screens should have not less than forty mesh per inch. Size kettles should be cleaned out thoroughly between batches. Barrels or size containers should be thoroughly steamed out before filling. Every ingredient for each batch should be accurately and separately weighed out.

Each sizing formula has a definite pH at which its application properties will prove best. This should be determined by laboratory tests and then rigidly maintained. This procedure must be repeated and minor, but nevertheless important, corrections made in pH whenever different lots of raw materials are encountered.

The cost of the sizing material used on rayon warps is an insignificant part of the total cost of the finished fabric. The wrong material will add so much to weaving costs and production of poor finished goods, yielding less ultimate dollars and lower sales volume, that there is no point in attempting economies where so little can be saved. The cheapest sizing material, regardless of its cost in cents per pound, is the one which delivers the lowest weaving cost, the best fabrics, and the biggest profit to the mill.

Rayon sizing formulas should be evolved by competent chemical experts working with rayon technicians, also after diagnosis of the mill's problem, and then compounded by skilled workmen under supervision of the chemists.

Some mills perhaps have a technical organization of such high caliber that no outside help is needed. We find this impractical unless a mill consumes about $50,000 of technical raw material a year, apart from yarns. Where such consumption is perhaps $5,000 or $10,000 a year, it is obvious that even the salaries of an expert chemist and a skilled assistant would be more than the profit of highly skilled organizations which supply standardized sizing compounds ready for use. One must also consider the additional overhead of a department in the mill to manufacture technical specialties. The outside organization of the right type divides this cost among its many customers, all of whom derive the benefit of contact with the most progressive ideas in the entire industry, instead of a horizon limited to only one mill.

Having chosen the proper size, one must apply it correctly if satisfactory results are to be expected. Proper application will pay handsome dividends. Important factors are:

Maintain uniform conditions in the temperature of application of size; in the concentration of the sizing solution; in the pressure of squeeze rollers; in the temperature of the drying cans; in the speed of operation of the slasher; in the tension of the warp during sizing.

Stretching of the warp, particularly acetate yarns, should be kept to a minimum. The practice of some mills of stretching warps to increase yardage involves damage to the plastic and elastic properties of the yarn, which in turn affects the weaving qualities of the warp and the finish of the fabric.

The size should not be applied too heavily. Sized ends should have a coating strong enough to withstand loom friction, but should be as pliable as possible.

Slow, gradual drying over the drying cans is best. Baking of the size and yarn should be avoided. The warps after leaving the drying cylinders should retain some moisture.

To avoid possible contraction of the sized ends on the receiving beams, acetate warps should leave the drying cans in a relatively cool state, soft and flexible.

Temperatures not exceeding 180° F. should be used in drying acetate yarns.

Only those sizing machines should be used which have the necessary devices for tension control and for the regulation of speed of operation, drying temperatures, pressure on squeeze rollers, and safe and easy operation of the machine.

Abstracted from the April issue of Johnson's *Rayon Warp Sizing Specialist.*

Overseers'

THIS DEPARTMENT

is a feature for overseers which is in effect a combination of our "Overseers' Round-Table" and "Kinks and Wrinkles." It covers, however, a broader field, including as it does useful material which would not have found a place in either. We will feature a superintendent's diary in which readers will find practical hints on various matters taken from actual mill experience. Also included are brief items of value from various sources, correspondence from readers and kinks that have actually solved some problems and may help in meeting yours.

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On Being Late

Editor, Overseers' Corner:

The overseer who is careless in the matter of being on time will find that his attitude is reflected in the performance of his workers, and production and quality will suffer as a result. Much more can be accomplished for punctuality by example than by insistence on rules which are violated personally.

Some overseers make a practice of being late to show that they are on a higher plane than the worker and are not subject to the rules, while another group affects tardiness as an indication of being absorbed in their work to the extent that they have no idea of time. Both of these attitudes are wrong, and are a detriment to the department and the mill.

Punctuality is a virtue well worth cultivating, and the habit of being "on time" is an asset of no mean value.

A. DYER.

Hiring and Visitors

Editor, Overseers' Corner:

In our mill, which employs several hundred and is in a small town, more than half of the employees either go home for lunch or bring it with them. The majority of the others have it delivered at lunch time—usually by children who leave school a few minutes before noon. As for anyone else, there is no entry into the mill without permission of the office. Permission being obtained, the lunch package is taken to the mill door and given to a floor boy, or the elevator boy, for delivery.

All other visitors, of course, must have office permission and escort through the mill. Employees of the night shift are requested to arrive not earlier than one-half hour before they start to work. As a rule, they comply.

Persons seeking employment are interviewed in the office lobby only. There is a signal system for all foremen; each of whom does his own hiring. This system is a set of lights on each floor, one light for each foreman, and a siren signal to draw attention to the signal. We also have an interior telephone system whereby the foreman may call from his office to the general office and know what is wanted.

Should that foreman be very busy, another foreman or the head of the office interviews the applicant. On the other hand, should the applicant be very special, he will be asked to wait. We have found it far better for a foreman to conduct the interview in the comparative quiet of the office than in any part of a mill with hundreds of machines operating.

This method is infinitely better than having strangers go through a mill and disturbing its efficiency by questions, conversation or just taking up room.

I. J. F.

Editor, Overseers' Corner:

In olden times, when industries were small, the owner or manager ran the plant and did all the hiring. As manufacturing enterprises grew larger, more complicated and cumbersome, the hiring authority gradually became a function of group and squad leaders. Most of the smaller mills conform to this custom. Although some overseers are better than others at keeping their overhead down, yet the system in itself is conducive to high labor turnover and expense. Moreover, the constant interruptions due to visitors affects the productive output.

Where such conditions prevail, I would suggest that one man could devote an hour or so a day to acting as an employment manager. It would be his duty to interview all applicants, keeping a classified record of them as well as plant personnel and job requirements. The adoption of such a plan would require prospective employees to apply at definitely stated hours and at no other time.

This plan is simple, easily set up, coordinates the factory personnel, cuts down expense, and instills a business-like atmosphere into what otherwise is a rather loose, slip-shod arrangement.

Z. E. SARGISSON.

Editor, Overseers' Corner:

There is a simple, practical solution to the problem of wanderers in any mill. The most culpable, of course, are the small, country-town mills where the workers' children, wives and relatives feel free to come into the mill, visit or bring messages, meals, etc. I solved the overseers' idea of wanting to talk with all help applying for a job by making them send in to my office a written request for help, or made them go on record as wanting to talk with one or two bright-looking operatives who might be useful in their departments. Our general office clerk had this list at all times and would first get hold of me to interview the applicant, after which, if he or she seemed likely to be useful to the overseer, I either sent him or took him to the overseer.

The workers in the mill questioned im-

A SUPERINTENDENT'S

(Based on actual mill notes)

FROM time to time I have jotted down notes on some of the faults fairly common among overseers. Of course, if an overseer has too many faults, he soon ceases to be an overseer, but I find that the average man slips into one or more inefficient ways of doing things quite frequently.

One thing that always makes me mad is to have an overseer pass bad work on to the next department without saying anything about it. He hopes that it will not be noticed and that he will get away with it, but 99 times out of 100 the bad work will be caught in the next department, or some other, and when it is necessary to call the overseer's attention to his mistake it is a black mark against him as far as I am concerned. The overseer who has some bad work should be straightforward about it and tell the overseer in the next department. Further, he should tell me also so that we can all do our best to make a correction before it is too late.

A number of overseers hurry too much in their work. Naturally, this leads to a lot of errors. What is more, the overseer may be so busy doing something that the workers are hanging around waiting to be told what to do. One of the overseer's principal jobs is that of supervision, and if he is dashing from this to that

Corner

COMMENTS ON OVERSEERS

By John Williams

and scurrying about he is not going to have time to see how the work is coming off the machines and sometimes a machine will be turning out bad work for a week without the overseer noticing it. The answer is that the overseer should plan his work better. If you go out and tell an overseer that one of his jobs is to organize the work of his help, he will look at you as though you had told him something as obvious as that the sun will rise tomorrow. And yet this same overseer may do nothing whatever about organizing and planning his own work.

It seems to me that some overseers act as though they had the world's best memories. They never think it necessary to keep a notebook and to jot down such things as details of machine adjustments, the twist used on a special yarn, a little trick that improved the weaving of a certain fabric, and all other pertinent stuff. And yet I have had overseers who were scornful about the notebook idea make bad mistakes because they didn't remember what should be done in a certain circumstance that arises infrequently or remember from season to season how certain yarns and fabrics should be handled. I think any overseer who doesn't keep a record book needs a few well-chosen words poured in his ear.

CONTRIBUTIONS

to the "Overseers' Corner" will be paid for without regard to length. We will be glad to use letters discussing the super's diary or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute kinks will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. If these pages interest you—contribute something to them to interest others.

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mediately any stranger, or set the overseer or second hand on their trail. This resulted in any casual visitors being requested to leave or come to the office and ask for a mill visitors' pass.

With these arrangements we seldom had unwanted visitors, and the overseers always had the names of a few desirable applicants on their waiting lists, even if we did have the most specialized branch of the textile industry.

E. E. G.

KINKS

Reconditioning Lickerins

An unscheduled question asked at the spring meeting of the Textile Operating Executives of Georgia, in Atlanta, resulted in bringing to light a simple method of reconditioning lickerins. The teeth are first straightened with a pair of pliers and then polished against an ordinary burnisher. The burnisher revolves away from the points of the teeth and moves at a higher rate of speed than the lickerin.

Even Shades on Raw Stock

When dyeing dark shades of brown on cotton raw stock much trouble has been experienced in obtaining level dyeing. The cotton comes out of the machine not dyed at all in some places, and with other parts dyed streaky.

To overcome this condition and to produce an evenly dyed cotton without streaks, it is advisable to give the goods a short preliminary treatment. For 1,000 lb. of raw cotton already loaded, make up a short bath of water, to which add 4 qt. of pine oil, 4 qt. of denatured alcohol, and 8 qt. of 50% sulphonated oil, previously mixed together. Start the bath cold, and bring to around 140 to 150° F. and run for one-half hour. Then add sufficient cold water to the dyeing machine to bring the water level up for dyeing. Add the dyestuff and complete the dyeing operation in the regular manner.

GEORGE I. PUTNAM.

Analyzing Complaints and Returns

The actual figures I use here happen to be from a dress plant, but the method of analyzing merchandise returned by a customer is one that can be applied to any plant with slight modification.

Before putting the plan into effect, returns amounted to about $150,000 per year, with consequent heavy losses. To remedy the situation, I installed a card system such as the one shown. This relatively simple device immediately showed up some pertinent data. In place of the old hit-or-miss method, we had a record of how each customer acted, and, where the return was due to an error of ours, we had facts and figures so that responsibility could be definitely placed in the plant.

Among the interesting things we discovered was that about 10% of the accounts were chronic returners on unjustified complaints. When this was discovered, these accounts were eliminated and we set up an arbitrary figure for returns which, if exceeded, made us suspicious of the customer to the extent of a careful investigation.

In brief, instead of cussing the customers all the time, we discovered that we were responsible for a good deal of the grief and we immediately took steps to overcome the difficulties. After the plan was in effect one year, returns were cut from $150,000 per year to the rate of $40,000 per year, with resulting savings in mark-downs.

J. M. MURPHY.

(J = Justified) (U = Unjustified) — Customer Address

Date returned	Defective workmanship		Defective material		Substitution		Late delivery		Over shipment		Open order		Remarks	Disposition
	J	U	J	U	J	U	J	U	J	U	J	U		
3/9	x													
3/11							x							
3/29			x		x									

QUESTIONS AND ANSWERS

Waterproofing Glazed Yarn

Technical Editor:
We are interested in a formula to treat yarn to make it mildew resistant and water repellent for glazed and soft yarn. For ordinary glazed yarn we are using the following formula: 2 lb. gum, 3 lb. bees-wax, 1 qt. coconut oil, and 22 lb. potato starch to 50 gal. The soft yarn would require a formula to be used in the dyebath or an extra bath after the yarn is dyed. (8176)

If yarn is made waterproof before dressing, the size will not be absorbed. On the other hand, if any attempt is made to waterproof after dressing, none of the regular waterproofing agents, such as the aluminum salts, will be absorbed by the dressed thread; or, if they are, the dressing is as good as destroyed, as far as appearance goes, and the stitching qualities of the thread are gravely impaired.

Silk-finished sewing thread may be termed waterproof for all practical purposes if it is well impregnated with paraffin wax. This may be done by the regular wax-roll dresser attachment, which is a 4-in. roll revolving 2 r.p.m. in a tank containing hot liquid paraffin wax. After leaving the size rolls, the thread passes over the melted wax and thence to the dresser brush, which, by friction, incorporates size and wax with the thread. If the thread has taken up sufficient wax, a cutting of it will float on water for days. When stitched into waterproofed material, such thread will neither conduct nor absorb water. The process has the additional advantage of improving the stitching qualities. Increasing the speed of roll will feed wax onto the thread in greater quantity.

For mildewproofing in conjunction with the dressing formula given in the inquiry, it is necessary only to add 2 qt. of one of the newer mildew-proofing agents to 50 gal. of size, stirring it in thoroughly before pouring into the size box. These compounds penetrate well, remain in the thread, and do not interfere with the waxing process.

Various proprietary waterproofing compounds are available which give good results on piece goods, etc.; but most thread finishers believe that these products impair the running qualities of thread. It is for this reason that the newer waterproofing mixtures of casein, latex, and ammonia are not employed. A manufacturer might honestly desire a waterproofed thread for his trade; but if the waterproof finish seriously interferes with his stitching-room production, little allowance would be made for the cause of his trouble and such a thread would be ruled out.

If you have no objections to solvents and desire to waterproof soft threads, the following formula might interest you. The thread should, of course, be dried after dyeing.

Paraffin wax 120°	10 parts
Yellow bees-wax	10 parts
Carbon tetrachloride	15 parts
Ethylene dichloride	15 parts
Benzol	100 parts

Shave the wax finely, gently warm the first four ingredients together; when

the waxes are dissolved, add the benzol and keep the mixture warm enough to stay clear. Run the thread in skeins through this and pile to drain, then spread on poles in a well-ventilated place. If the thread is white, double the amount of paraffin wax and omit bees-wax. Some of the wax will shed in the winding tensions at the coning process, but an excellent flexible, easy-sewing, waterproof thread will be produced. Remember, of course, that this mixture and the vapor are liable to be quite inflammable in spite of the carbon tetrachloride. The fumes are objectionable and the more air circulating the better the worker will feel.

If an ordinary waterproofing compound is used instead of the methods suggested above, it will still be necessary to wax the thread; and we have doubts as to whether you will find the wax ring at winding sufficient to counteract the harshness imparted by the waterproofing process.

If the solvent method does not appeal to you, you might try running the soft thread over the dresser, through feed rolls, over the hot-wax roll, and clear of brushes to the take up. The wax roll will have to be speeded up from its silk-finish speed.

Double-Shot Fabrics

Technical Editor:
Are there any kinds of cloths being woven double shot; that is, two picks of filling before it is bound in the cloth? I am now speaking of rayon or silk. If so, could you give me the names of some and what they are used for. (8212)

A few years ago there were a number of fabrics woven in this manner. These were mostly sheers for dress goods. Today, however, there is little but the romaine crepe, which also is used mostly for dress goods; although a number of novelties have a few double picks scattered throughout a repeat of the pattern.

Cotton on Woolen System

Technical Editor:
In the manufacture of cotton yarns we find in the sizing of the yarn that the actual size may vary as much as 3% from the standard size without any ill effect. Could you tell us what percentage of variation could be expected in the manufacture of manipulated yarns using the cut system and mule spinning frames? (8200)

We assume that your inquiry relates to the variation in counts to be expected when spinning cotton to the cut system on the woolen principle. The permissible variations in counts of woolen yarn spun on the mule depend on the type of cloth being made and the kind of looms used. The actual minimum variation to be expected depends on the ability of the mill and condition of the carding and spinning rooms.

Mule-spun bobbins usually vary in counts from the bottom to the top. The degree of variation depends on the skill of the operator and the use of compensating devices available to correct this change in some degree.

Assuming average well-balanced conditions, cotton should be spun on the woolen mule to the cut system with a 2% variation in counts. This variation is on usual skein tests.

Hosiery Welt Discolored

Technical Editor:
We are inclosing herewith one pair of women's full-fashioned hose which have been returned to us. You will notice the heel and foot of both stockings have a white-looking substance in them or, at least, have changed color. The history is as follows: The hose were worn about 3 hr., taken off and washed in lukewarm water with Lux, then allowed to dry—not in the sun or over a radiator, but in moderate heat. It appears to us that some kind of foot powder or something of this nature has been used, but the customer asserts that nothing was used. We shall appreciate it if you will give us your ideas on the matter. (8183)

The sample submitted shows evidence of much more than 3 hr. of wear. It is noticed that the stamping on the foot is practically obliterated. This condition would hardly have developed with 3 hr. of wear and one wash in lukewarm water with Lux. If the goods were worn for only 3 hr., they certainly show evidence of violent exercise for that length of time in something like a marathon foot race or a dance.

The discoloration is due to two causes: (1) chafed or broken fibers, and (2) by foot powder of some description.

If the customer did not use any powder at the time stockings were worn, she certainly had on a pair of shoes in which powder had been formerly used, and the powder transferred from the shoe to the hose. This seems to be the logical solution, as we notice that the outside of the stocking bears a much more marked effect of the powder than the inside.

Holes in Legs

Technical Editor:
We are inclosing two 39-gage stockings which have small holes in the legs. The stockings have not lain in bins, as they are inspected, at the latest, the day following the knitting. What, in your opinion, is the cause of these holes? (8169)

Your inquiry gives the impression you are of the opinion that the holes in the samples submitted were caused by carpet beetle or vermin of some kind. Undoubtedly you are having more than a negligible amount of this trouble or you would not have made this inquiry, and it is quite possible that you are having trouble of the same nature caused by the beetles or moths. The beetle plague can reach serious proportions, and we

QUESTIONS AND ANSWERS

advise a very careful check-up of storage bins or cases for both raw silk and finished goods to make sure that your storage bins are not infested with moths or vermin of some description.

The holes in the particular samples submitted are, however, purely mechanical in our opinion, and have been overlooked by the inspector in the gray-goods inspection. We note slight depressions in the fabric at the points of the holes. We also note that the holes are in about the same location on the legs of the different stockings and are on the same side. We are of the opinion that they were caused by the careless handling of topping or transfer bars in laying the bars on the footer preparatory to transferring. The indications are that the bars were laid up in a rather careless or heavy way and the holes were cut by the head of a screw or some rough surface on the bar, which pressed the leg against the rail or some other metal part on the front of the machine. Such damage is frequently so slight (in fact, oftentimes all the fibers of the silk are not cut in two) that the damage can easily be overlooked by the gray-goods inspector. The weakened stitches may be broken by the inspection operation and still overlooked. We believe that a careful check-up on your footers will reveal the source of your trouble so far as the holes in the submitted samples are concerned. It is also possible that similar holes will be found traceable to moths.

Filling Storage

Technical Editor:

In the weave room of our plant we now handle the large variety of filling-yarn numbers that come from the spinning room in a very unsatisfactory manner. This filling is brought over from the spinning room in old-style wooden box trucks. At the present time we have running in the goods on our looms 55 different kinds of filling. This, of course, is not in different yarn numbers, but includes all different colors and yarn numbers which must be kept separate when they are stored in the weave room.

The method we have of moving this filling from the spinning room to the weave room and storing it in these trucks takes up a great amount of valuable space in the weave room, and also gives us a situation in regard to the stock on filling that is very hard to maintain accurately and keep straight.

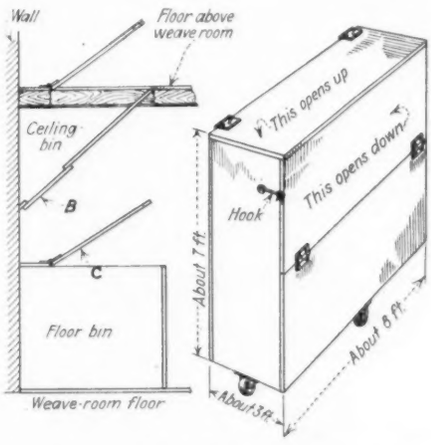
We believe that the problem of handling our filling could best be solved by the construction of bins to hold the different kinds of filling. For us to gain very much by this method, the construction of the bins would have to be such that they would not take up any great amount of extra space in the weave room, and such that the filling could be transferred to each bin after it comes from the spinning room and readily taken out again when the time comes for it to be put in the baskets and taken to the looms.

We have not yet definitely decided on any particular method of handling this filling and for this reason we are submitting this question to you so that you can help us on it. (8172)

We could give you a much better answer if we could see the layout of your departments, especially the spinning and weaving departments. Some mills have plenty of space around their walls, and others none at all. We shall, however, offer a few suggestions, which we hope you can apply—at least in principle—to your conditions.

Providing the department above the weave room has sufficient space at the walls, we recommend a battery of ceiling-type, V-shaped bins. This type of bin allows the use of a floor bin on the weave-room floor directly underneath each ceiling bin—provided, of course, there is sufficient space on that floor. This arrangement cuts down the floor space needed, but calls for holes in the ceiling above the ceiling bins and for sliding doors which can be opened and shut.

In the accompanying sketch *A* shows where a trap door should be installed. This is closed at all times except when



the yarn or filling is being dropped into the ceiling bin. One mill using this system has padlocks on these trap doors. In that plant a yarn man has the key and opens up for the spinning-room doffers when they are ready to put the yarn in. *B* shows the approximate position of a sliding door, which can be opened and closed in an up-and-down movement. *C* shows the approximate position of the top cover on the floor bin. Small baskets are used for obtaining the yarns from the ceiling bins. These baskets are placed directly under the sliding door *B* and rest on the top of the floor-bin cover.

Some mills use an exceptionally large truck holding approximately four times the amount of yarn on bobbins that the average weave-room truck holds. Such a truck has been used for many years by a large mill making carded, combed, mottle, slub, merino, and waste yarns in many different counts. The dimensions of the truck must be such that it will pass through all doors between the points of loading and unloading.

Washboard and Zebra

Technical Editor:

We are inclosing two stockings made on Reading ringless machines, showing a streaked foot apparently every third course. This imperfection, so far, has been noticed only in the foot, and these same machines have been running on this type of silk for practically one year without showing any imperfection such as this. You will note in the darker stocking that the streak is more pronounced than in the lighter shade. The silk is a 3-thread, 20-turn, 13/15-denier Japan. Can you give us any information which will help us to solve this problem?

We also are sending one stocking knit from two ends of 6-thread, 10-turn. The foot in this stocking dyes up clearly, but you will note that the leg has a very streaked effect. It is rather unusual to make a stocking with two ends of 6-thread, rather than one end of 12-thread. For your information, possibly 1,000 lb. of the silk had been knit and dyed without this imperfection showing up. It has occurred just on a recent delivery. In addition to the full stocking, we send part of a leg which has the same imperfection, but, as you will note, a little more pronounced. (8190)

The 3-thread stockings submitted with this inquiry show no evidence of any trouble other than the common trouble of three-carrier knitting known as "washboard." The third-course streak is caused by uneven silk. In other words, one silk is of smaller or larger diameter than the other two. The result is two courses of uniform size and one of different size.

The same trouble will develop through the use of one thread with more or less twist than the other two. Trouble of this nature from either cause can be easily seen during the process of knitting.

A careful follow-up of the knitting operation and changing of cones of silk when trouble is discovered will result in the elimination of the streak and isolation of the offending cone of silk. Tests can then be made for size and twist, placing responsibility where it belongs.

The zebra-stripe effect is undoubtedly caused by different natures or different ages of silk in the two ends employed in producing the 12-thread stocking. Your inquiry leads us to believe that you have had some lots of 6-thread discontinued stock twisted into 12-thread for the purpose of working off the stock. If this is correct, it is quite possible that silks of different natures or different ages as to the dates thrown have been twisted together.

This, which is bound to result in uneven dyeing, zebra stripe, or two-tone effect. Of course it would be possible to put through 1,000 lb. of such silk without running into trouble; but again, you might put through 1 lb. and find trouble.

We feel that the causes for uneven dyeing of silk are too well and generally known to warrant further discussion here.

We may point out, however, that silk of the same nature is likely to dye entirely different if one cone fresh from a throwster is knit up with another two or three months old; and even two or three weeks may cause trouble.

THE PERSONAL PAGE

D. W. Anderson new president of Pacolet Mfg. Co.

Henry G. Nichols of Otis Co., now a director, Pacific Mills

R. E. Cullen now director of sales, DuPont Rayon Co.

C. A. Jones, elected chairman, Southeastern Section, A.A.T.C.C.

Theodore Wood who heads American Bemberg Corp. promotion

D. W. Anderson, treasurer, Pacolet (S. C.) Mfg. Co., has been elected president, succeeding the late V. M. Montgomery. Mr. Anderson at one time was general manager of the New Holland (Ga.) plant and has been with the company since 1906. While in Georgia he served a term as president of the Cotton Manufacturers Association of Georgia, 1931-1932.

Franklin W. Hobbs, president of Arlington Mills, Lawrence, Mass., was re-elected chairman of the Textile Foundation at the annual meeting in Washington on April 17.

Wade H. Love was elected president; **W. P. Harvel,** first vice-president; **Roy Furr,** second vice-president; and **Brooks Jerome,** secretary-treasurer, of the newly organized Stanfield (N. C.) Hosiery Mills, Inc., on April 23.

John H. McFadden, Jr., has been nominated for re-election as president of the New York Cotton Exchange, **John C. Botts** as vice-president, and **Clayton B. Jones,** as treasurer. Election will be held June 3.

Benedict Gordon is president of General Webbings Corp., Springfield, Mass.; **Charles Stein** is vice-president, and **Sydney Sayetta** is treasurer. **William J. Hyland, Jr.,** and **Floyd E. Cushman,** president and treasurer, respectively, of the Springfield (Mass.) Webbing Co., which plant was taken over by the new organization, have absolutely no connection with the new concern, as was erroneously reported in our last issue.

George P. McClenaghan is now associated with Hesslein & Co. (Bradford Cotton Mills), with headquarters at Montgomery, Ala. Mr. McClenaghan, previously with J. E. Sirrine & Co., Greenville, S. C., will be immediately associated with **H. B. Howell,** vice-president and general manager.

James Hazzard, manager of sales of James Talcott, Inc., textiles, has been elected a director of the company. Mr. Hazzard has been with the company since 1929 and from 1906 until 1929 was associated with Peierls, Buhler & Co., a unit of Commercial Factors, Inc.

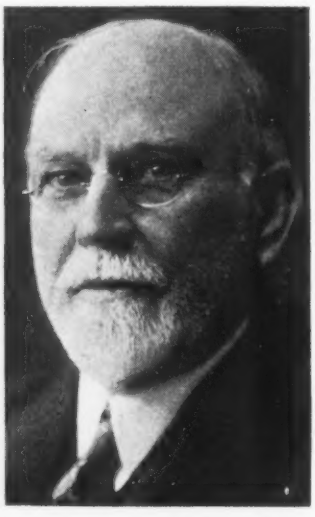
R. H. Brown, Parks-Cramer Co., Boston, has accepted the chairmanship of the American Society for Testing Materials' D-13 subcommittee on humidity.

Harold B. Sturtevant, formerly with the American Printing Co., Fall River, Mass., is now superintendent of Aspinook Co., Jewett City, Conn.

Arthur D. Whiteside has resigned as a member of the NIRB and will return to his position as president of Dun & Bradstreet, Inc., as soon as conditions permit.

H. A. Mereness, who for two years has been director of the technical bureau of the National Federation of Textiles, Inc., has accepted appointment to direct the work on consumer standards of the Consumers Advisory Board of the NRA.

E. J. Venopal has been appointed director of sales for Charlottesville (Va.) Woolen Mills, with headquarters at Charlottesville.



JAMES H. McGRAW, chairman of the board of the McGraw-Hill Publishing Co., Inc., publisher of TEXTILE WORLD, *whose 50th anniversary in business publishing was made the keynote feature of the annual meeting of the Associated Business Papers at Hot Springs, Va., May 4 and 5. The annual dinner was turned into a testimonial in honor of Mr. McGraw. Addresses analyzed his contributions as an editor, a publisher, an associate, and as a man. He was also presented with an illuminated scroll and a watch. In responding to the addresses, Mr. McGraw pointed out that although the business press had traveled a long road and achieved a high measure of success, he believed that it had a great future, particularly if it embraced the opportunity which was now offered to interpret for business-men the economic trend and development in the new era ahead.*

At the same meeting, the association paid a tribute to Henry G. Lord, publishing director of TEXTILE WORLD, *who has also completed a half-century in business publishing, as noted recently in these columns.*

J. R. McLaren, treasurer for many years of Thermo Mills, Hudson, N. Y., is still treasurer of that company and has not resigned his post as was erroneously reported in these columns last month.

Henry Pope, Jr., has been elected president of Bear Brand Hosiery Co., succeeding his father, **Henry Pope,** now chairman of the board. Mr. Pope, Jr., is 32 and has been vice-president of the company for five years.

Frederick M. Lyon, assistant manager, Opp Cotton Mills and Micolas Cotton Mills, Opp, Ala., has been elected secretary of the two mills.

James Oates, Dalla-Noval Yarn Mill, Dallas, Tex., has been appointed superintendent, Juliette (Ga.) Milling Co.

W. L. Robertson, associated with Cheney Bros. for several years, has been appointed sales manager of the cravat department succeeding **G. W. Hunter,** resigned.

C. W. Pearson has become general superintendent of spinning, first and second shifts, St. Pauls (N. C.) Cotton Mills.

C. D. Walls has been appointed superintendent of carding, Tifton (Ga.) Cotton Mills, and **T. J. Parnell** has been made superintendent of spinning.

Harry Dillard is assistant superintendent of Eagle & Phenix Mills, Columbus, Ga., and not general manager as previously reported.

L. U. Edgehill has resigned his position as sales manager of National Wool Marketing Corp., Boston. **C. J. Fawcett,** a midwestern wool factor, has joined the sales force of the organization.

Carl A. Frick, formerly with Botany Worsted Mills, has been placed in charge of the Hamilton women's wear fabrics of J. P. Stevens & Co., New York, replacing George R. Dugan, resigned.

James Lipser, formerly vice-president and general manager of United Textile Print Works, Inc., Long Island City, N. Y., has been made vice-president and sales manager of Collingbourne Mills, Inc., Elgin, Ill.

James A. Roger has been elected president and treasurer of Fulton County Silk Mills, Gloversville, N. Y., succeeding the late **Ernest Jones.**

T. J. Mallon has resigned his position as assistant secretary of Meinhard, Greeff & Co., Inc., New York, to join Burlington Mills, Inc., as assistant treasurer.

William Morrill has been appointed agent of the Cocheco Woolen Mfg. Co., Rochester, N. H. For the last year he has been agent of the Gonic Mills, at Rochester, and he will continue its supervision. He succeeds **Albert W. Slocum** at the Cocheco Mill, who has been agent for the last twenty years.

W. P. Harville has been appointed superintendent of the Stanfield (N. C.) Hosiery Mills. He formerly held a similar position with the Mount Pleasant (N. C.) Hosiery Mill.

J. V. McCombs has become superintendent of the Pilot Cotton Mills, Raleigh, N. C. He was formerly superintendent of the Franklinville (N. C.) Mills.

I. C. Walker has been promoted to superintendent of Fitzgerald (Ga.) Cotton Mills to succeed **Walter Dillard** who has been appointed superintendent of New Braunfels (Tex.) Textile Mills.

William Pettzer has resigned as sales manager of Apex-Oriental Corp. Mr. Pettzer became associated with the firm when it was known as the Apex Piece Dye Co. and continued with the company when it became a subsidiary of the Duplan Silk Corp.

Textile Calendar

Cotton Manufacturers Association of Georgia, annual meeting, at The Cloister, Sea Island Beach, Ga., May 16 and 17, 1935.

Lowell Textile Institute Alumni Association, annual meeting, Lowell, Mass., June 1, 1935.

Southern Textile Association, annual convention, June 14 and 15, Ocean Forest Hotel, Myrtle Beach, S. C.

Fifteenth Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 2-7, 1935.

Obituary

Charles Frederick Cross, aged 79, co-inventor of the viscose process of rayon manufacture, died in Sussex, Eng., April 15. With the late **E. J. Bevan,** Mr. Cross invented and patented the viscose process of treating cellulose in 1893 and the two also contributed much to the knowledge of mercerizing. Among the companies formed by Mr. Cross and associates was the Viscose Spinning Syndicate, later taken over by Courtaulds, Ltd.

Edmund L. Mansure, aged 73, founder and president of E. L. Mansure Co., Chicago, died April 23.

Henry Clinton Dexter, aged 65, died at his home in Central Falls, R. I., on April 13. Mr. Dexter began his career with Pawtucket Mfg. Co., became agent for Green & Daniels Thread Co., later was affiliated with Fales & Jenks Machine Co., Pawtucket, R. I., and for some years was also president of Warren (R. I.) Lace Works. He was one of the organizers and a past president of the Southern New England Textile Club, and the instigator and president of the Slater Cotton Mill Association, formed to commemorate the first cotton mill in America.

Marsden J. Perry, aged 84, organizer and first president of the American Ring Traveler Co., Woonsocket, R. I., died in New York, April 15.

Frederick Grandison Sargent, aged 91, long treasurer and general manager of C. G. Sargent's Sons Corp., Graniteville, Mass., died at his home in Graniteville on April 9.

William E. Mitchell, vice-president, Ciba Co., Inc., New York, died on May 2.

J. C. Watkins, aged 65, one of the founders of the Hunter Mfg. Co., which later became the Hunter Mfg. & Commission Co., died April 22 at Greensboro, N. C. Mr. Watkins was president of the Columbia Mfg. Co., Ramseur, and a director of numerous firms.

Frank E. Heymer, aged 60, at one time general superintendent of Eagle & Phenix Mills, Columbus, Ga., and a former president of the Southern Textile Association, died at Columbia, S. C., on April 15 after a week's illness. He was a native of Saxony.

Harry G. Garland, aged 76, Garland Mfg. Co., Saco, Me., died on a train in North Carolina, April 11, while returning from Miami.

Frank H. Walsh, who represented the Neisler Mills Co. in Philadelphia, Baltimore, Washington, and New England, died April 27 after a brief illness. He was with Thomas F. Kelley & Co., Boston, for many years, and also with Tatum, Pinkham & Greey.

Robert W. Glenn, aged 51, for the last 12 years southern representative of the Ciba Co., died April 15 in Greensboro, N. C. He had been connected with the dyestuffs industry for many years.

Syndham B. Alexander, age 58, southern manager of Crompton & Knowles Loom Works for more than 25 years and a director of the company, died in Charlotte, N. C., May 6.

Theodore H. Price, age 74, for many years editor and publisher of *Commerce & Finance*, and a raw cotton authority, died at his home in New York City on May 4.

Another Step in Warp-Sizing Research

The committee having charge of the administration of U. S. Institute's research on warp sizing (Wright Bolton, chairman; Dr. J. B. Quigg and Dr. H. A. Neville) announce the appointment of Dr. J. A. Katz as director of the study, and of William E. Yelland, S.B., as assistant director. Dr. Katz has been at Cornell University since last fall as Baker non-resident lecturer in the Department of Chemistry and has just completed a series of lectures at universities in the Middle West. Since 1918 he has been associated with Amsterdam (Holland) University as lecturer on colloidal and physical chemistry.

Mr. Yelland, assistant director of the warp-sizing research, has been associated with M. I. T. since his graduation in 1930, as a graduate student, laboratory assistant and part-time instructor in analytical, inorganic, organic and physical chemistry, and is now completing his thesis for the Ph.D. degree in organic chemistry.

Summer Course on Textiles

James Chittick, New York, has arranged to conduct a series of summer classes in textiles at 45 East 17th St. There will be 16 sessions, on Monday evenings, 6:30 to 8:30, beginning June 3. Courses will cover raw materials to finished goods.

150th Birthday of The Power Loom

It was 150 years ago that the first patent on the power loom was taken out. Edmund Cartwright, who had been born in Marnham, Nottinghamshire, England, in 1743, was rector of Goadby Manor, Leicestershire, in 1784, and he would have lived his life in peaceful obscurity if his attention had not been accidentally turned to the possibility of applying power to weaving. The first patent on his crude contrivance was taken out the following year, 1785, and further patents in 1786 and 1787.

Cartwright set up a spinning and weaving plant of his own in Donchester, in 1785, but, ironically enough, the man who made possible such tremendous savings in textile manufacture went bankrupt and creditors took over the mill in 1793. He met with no greater financial success in trying to cash in on a wool-combining machine which he patented in 1789.

At length, however, the nation recognized his outstanding contribution to progress and, in 1807, the House of Commons voted him £10,000. Cartwright retired to a farm and died in 1823.

Philadelphia Alumni Outing

The Alumni Association of the Philadelphia Textile School will hold its annual outing at the Manufacturers Country Club, Friday, June 7. Traditional highspots include the association golf championship, and the baseball game between the married and the single men. Henry C. Legge, general chairman, has appointed the following committee chairmen: Transportation—Charles E. Firth. Baseball—E. C. Bertolet. Golf—Bartram A. Stroock. Luncheon—Willis Fleisher. Prizes—Charles W. Neeld, Jr.

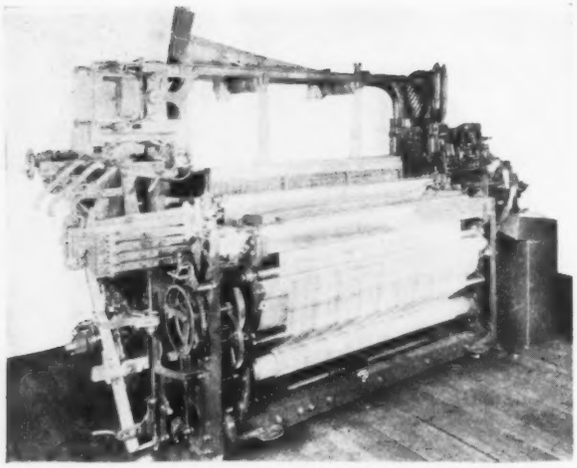
Lowell Alumni Meet June 1

A new policy of tying in Alumni Day with the annual commencement exercises of Lowell Textile Institute is announced by Prof. A. A. Stewart, secretary of the institute's alumni association. Therefore, this year's reunion will be held at Lowell on Saturday, June 1, instead of earlier in May as hitherto. The evening banquet, optional this year as last, will be at the Vesper Country Club.

NRDGA Mid-year Meeting

Employer-employee relations will be a major topic at the mid-year convention of the National Retail Dry Goods Association, to be held during the week of June 9 at the Stevens Hotel, Chicago.

NEW MACHINERY



Silk and Rayon Loom

A new silk and rayon 4x1-box loom with a shuttle-changing motion operating on the top two shuttles and a feeler indicating filling depletion in the other two has been announced by the Crompton & Knowles Loom Works, Worcester, Mass. It is intended, of course, that filling for the ground of the fabric shall be placed in the top boxes, while the more slowly exhausting yarns of decoration shall be put in the bottom boxes. When the loom stops for a non-automatic replenishment of filling, the shuttle can be ejected from the box by the mere pressure of the weaver's foot on a conveniently located pedal. In other respects the new loom, which is to be known as the Type S4 Super Silk and Rayon model, resembles the Type S3 Super Silk and Rayon loom developed by Crompton & Knowles some three years ago.

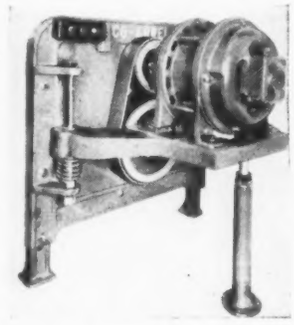
Cone Winder

Shown at both textile shows last month was a new cone winder for cotton developed by Universal Winding Co., 95 South St., Boston. The new machine is known as the Roto-Koner, or Model No. 44, and employs rotating traverse rolls which revolve the cones and, through grooves, guide the yarn without any reciprocating mechanism and without rubbing. "Whiskers" on the yarn are largely eliminated, it is reported; and an acceleration of the groove, which serves to build the cones faster at the bottom, gives an increasing taper as the package builds up in order to facilitate unwinding over-end.

Unlike the previous Model No. 40, the new machine does not locate its cones directly over the traverse roll, but instead rests them against the side in order that, as the package builds up, its weight does not add pressure to the inside layers of yarn.

The cone arms are pivoted from below so that the force of gravity is always kept at an angle off the perpendicular and the weight of the cone arm is constantly subtracted from the weight of the package. Furthermore, in the new design the cone lies across, rather than parallel to, the axis of the driving roll; and this arrangement causes the cone to be driven near its center, removes pressure from both ends of the cone, and so builds up a uniform density of package.

A splash system oils the major moving parts, the roll shaft is mounted in ball bearings, and it is necessary for the oiler to lubricate only the shaft which controls the lifting of the cones. Press-button control enables the operator to start cones easily, and the stop motion has been designed for unusually light touch. General streamline design has eliminated many places where lint might accumulate; and the selection of yellow as the color of the machine, an innovation resulting from a careful study, is expected to make cleaning more efficient and thorough than on previous models. Operation is unusually quiet.

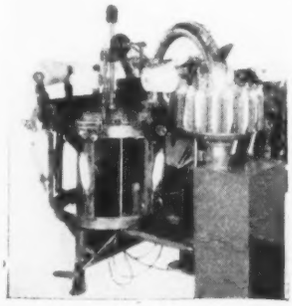


Short-Center Spinning Drive

An evolution has taken place in the pivoted motor base for short-center, flat-belt, spinning-frame drives built by the Rockwood Mfg. Co., Indianapolis, Ind. The first mills to install such a drive insisted that the motor be placed on a low shelf. Later, however, the Rockwood engineers persuaded certain mills to accept a low pedestal design in which the pivots and all mechanism were completely inclosed, on the basis that this design made cleaning even simpler.

The latest stage in the evolution of this drive, however, resulted from the necessity for providing a base adaptable to reversing motors, which are used by a number of mills to permit changing the direction of twist; and now the manufacturer recommends the new design for all spinning-frame installations, although willing to provide either of the other two types when specified. The new design, which is illustrated herewith, involves a high shelf supported at three points. Two of the supports consist primarily of compression springs, one at each side of the frame; and these permit the motor to pivot in either direction (as the belt pull may dictate) on the third support, which is a leg located centrally with respect to the frame and at the outer extremity of the shelf. In this case, the motor pulley is located over the driven pulley, with the result that the shelf is high for easy cleaning of the floor and is at a convenient location for the mechanic. Furthermore, in this location the motor serves as a belt guard.

Incidental to the pivoted base, the Rockwood company has developed a new spinning-frame pulley with demountable rim, which makes possible changing the pulley ratio without removing the entire pulley from the cylinder shaft, often a difficult undertaking on modern frames with closed-in ends.



Knot-Tying Winder

The circulating-spindle winder of the Abbott Machine Co., Wilton, N. H., has now been equipped with an automatic head for tying the new bobbins to the cones, dye springs, or tubes being wound. Hence less skill is required of the operative, and failure in the hand operations due to fatigue or carelessness is avoided. The new mechanism can be applied to any standard Abbott winder.

The operative places each bobbin vertically in the horizontally revolving battery shown in the photograph. She drops the end from the bobbin into a circular ring surrounding the battery end of the arch-like suction pipe which may be seen extending from the frame to the battery. A light suction holds the ends and allows them to be turned like the spokes of a wheel with the bobbins, each one falling in turn into the knotter to be tied. In the meantime a small roll on the winder revolves the wound package in a direction opposite to that required for winding in order that the end of the yarn last wound will be loosened from the package and picked up by the suction. A long slit extends the entire length of the arched suction pipe, on the under side, and through this the end from the wound package is whipped by the suction over to the knotter located in the center of the battery. When both the new and the old ends are in place, the knotter ties them with either a standard weaver's knot or (at the option of the mill) a so-called "fisherman's knot," which this machine introduces as a practical textile knot for the first time. The fisherman's knot is a small, centrally located knot which is difficult to tie by hand but relatively simple to tie by machine.

With the knot tied, the bobbin is dropped through a trap onto a chute that directs it accurately onto the bobbin peg. Any slack is taken up at this point by a mechanism that at the same time acts as a sizing gage. When the proper diameter is reached, a signal horn is blown to warn the operator to doff the package. This operation is performed without interrupting the working of the magazine, which meanwhile gives ample reserve capacity. Further movement of the machine starts the winding operation.

The traveling-head principle, a feature of all Abbott winders, is used as the mechanical basis of the new machine. All work incoming and outgoing is handled at one point. The operative can stand or sit in a comfortable position and has no trucks or boxes to move. Her work is confined to keeping the hopper filled and doffing. Since packages of 5 lb. or more are produced, this work is relatively light.

Another feature of the new machine is an automatic bobbin sorter. This device, placed after the run-out point of the bobbins, dumps the empty and partly run-out bobbins into separate compartments. Where a single machine or a battery of machines is used, the empties can be carried off by a conveyor belt. The partly run-down bobbins are returned directly to the supply hopper for retying.

The new winder is expected to find its chief application in mass production for warping and twisting, although it is said to be applicable to any of the standard winding processes for sales yarn, dyeing, etc.

Improved Shuttles

Important improvements in shuttle construction are announced by Watson-Williams Mfg. Co., Millbury, Mass. A one-piece cast-iron eye eliminates all pins, brushes, and movable parts; holds filling down in the thread groove to keep it from hopping out on the second pick; and forces it to hug the metal, thereby tending to create a continuous even tension.

A second improvement is an automatic expanding ear-clip catch for either metal base tubes or wooden bobbins. This is designed to protect the base of the tube or bobbin against being marred, roughened, or twisted. These improved shuttles come twelve in a package—weighed, assorted, and inspected—ready for use.

Textile Projector

Bausch & Lomb Optical Co., Rochester, N. Y., announces a new textile projector, of special interest to silk hosiery manufacturers and throwsters, designed to project, magnify and photograph knitted fabrics. A silhouette of the back weave in double-weave fabrics is visible, while the front weave shows clearly and in natural colors. The instrument is particularly useful in making a detailed examination of troublesome defects. It is pointed out that a magnified photograph is often of great service in describing findings

to customers, as well as in proving contentions to suppliers in event of claims.

The projector consists of a combination - viewing - box and camera, yarn and thread holder, and projection lens. Magnification is 16X with the camera or when the viewing-box is used for direct observation. Greater magnifications are possible when the image is thrown on a screen. The device is said to be simple to operate, requiring no special training and no dark room.

Loom Stop Motions

An improved knock-off box for electrical warp stop motions and a delayed stopping device for filling feeler motions have been placed on the market by the R. I. Warp Stop Equipment Co., Pawtucket, R. I. The former, illustrated by Fig. 1, has no reciprocating, or even continuously moving, parts; requires no lubrication; and is suitably located at a convenient place outside the loom. The delayed stopping device, Fig. 2, is all electrical, requires no re-setting, will stop a 2x1-box loom with the shuttle on the plain

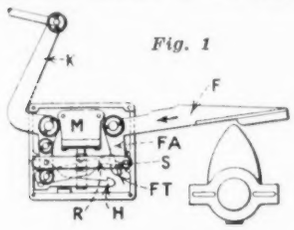


Fig. 1

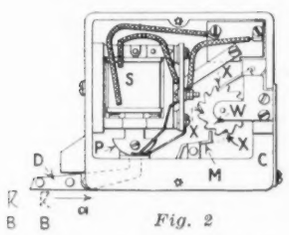


Fig. 2

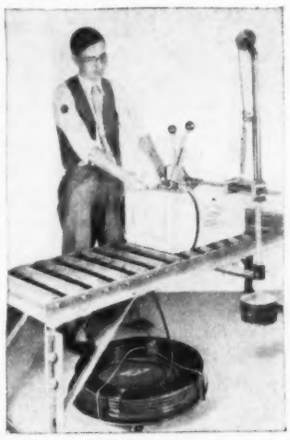
end, and can be supplied with ratchet wheels (*w* in diagram) to meet other conditions.

The knock-off box, Fig. 1, operates as follows: Cam follower *F* is held suspended above the cam as shown. When drop wire falls or feeler acts, the retriever pawl *R* is raised by magnet *M*; at same time the pull-off hook *H* is lifted into path of movement of follower arm tip *FT* as follower *F* follows the cam. Engagement of follower arm tip with pull-off hook *H* results in movement of K-O arm *K* to stop the loom. When lever stops, the retriever *R* falls behind the shoulder *S* of the follower arm *FA*. Starting the lever causes the retriever *R* to push on the follower arm *FA* raising the follower away from the cam and holding it there until again released by action of a drop wire or other circuit-closing device.

The delayed stopping device, Fig. 2, operates as follows: Solenoid *S* raises plunger *P*. Dagger *D* drops into path of bunter *B*. Bunter *B* encounters dagger *D*, moving it in direction of arrow *a*. Pawl *M*, moving with bunter *B*, engages and turns ratchet wheel *W*. At every third tooth is an electrical contact *X*. Case *C* is connected with ground side of circuit. When pawl *M* encounters contact *X*, circuit is closed. Closed circuit actuates knock-off.

Oil-Immersed Starters

A new line of oil-immersed magnetic starters of the reduced-voltage, auto-transformer type is announced by General Electric Co., Schenectady, N. Y. All arcing contacts are 6 in. under oil, and an induction-type temperature overload relay is mounted in oil. Either current-limit or time-limit acceleration is available, and an ammeter attachment can be supplied if desired. Ratings range to 600 amp. at 600 volts and 200 amp. at 2,500 volts.

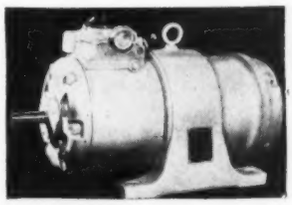


Steel Strap Retainer

For use with conveyor systems or strapping tables where space is at a premium, Acme Steel Co., Chicago, has placed on the market a retainer for its product, Steelstrap. The retainer is primarily a steel pan or tray on which the coiled steel ribbon lies in a horizontal position tucked out of the way beneath the conveyor or table. The tray, mounted on casters, is 24½ in. in diameter and 9½ in. in height.

Variable-Speed Power Unit

Exhibited for the first time at the Southern Textile Exposition was a variable-speed power unit developed by New Departure



Mfg. Co., Bristol, Conn. The power unit consists of a constant-speed electric motor built in as an integral unit with a transmission, the speed of which is infinitely adjustable over its entire range. In fractional-horsepower and 1-hp. sizes with standard 1750-r.p.m. motor, the output speed range is from 560 to 5600 r.p.m., or a 6 to 1 ratio. It is also furnished with 1200- and 900-r.p.m. motors for correspondingly lower speeds.

In the power unit, hardened steel rollers in pressure contact with equally hard steel races are utilized to transmit power. An automatic pressure device is employed which utilizes the imposed torque load itself to generate the required pressure between the rollers and races. This device is said to be so sensitive to the slightest change in the imposed torque that the roller contact pressure is positively maintained under either continuous, variable, or shock loads, in a definite proportion to the transmitted load. In this way an absolutely positive drive is obtained under all conditions including overload. Another feature is a device to give automatic return to the low-speed starting position, so that upon stopping, either through failure of current supply or intentional shutdown, the unit will automatically return to the low-speed high-torque position, thereby avoiding overload of the motor when again started. If the power unit has been set for a certain desired speed, it will, when restarted, automatically accelerate until this speed is reached and will maintain such driving speed until changed by operation of the speed control.

Any speed can be obtained instantly by operation of a speed control located on top of the unit. This control can be operated while the unit is running, or any speed can be pre-selected before the unit is started. Where the power unit is located beyond easy reach of the machine operator, the control can be connected by a flexible shaft to a dial, mounted at a convenient point on the driven machine. In cases where the power unit must be mounted at such a distance as to prohibit the use of a flexible-shaft connection, speed control may be accomplished electrically by the use of very small synchronous motors, one at the operating station and the other connected to the speed control on the power unit.

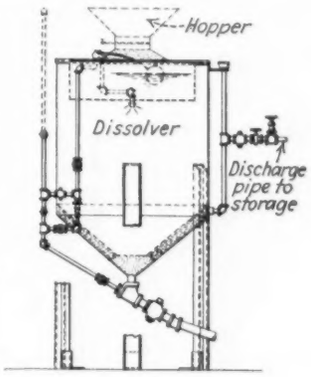
The power unit is compact and is fully inclosed so that it will not be affected by weather conditions or oily atmosphere. The motor shaft and variable-speed output shafts are in line, and both shafts, as well as all other rotating parts, are rigidly and permanently supported by New Departure ball bearings.

The only lubrication attention necessary is the addition of oil at infrequent intervals; lubrication of all parts within the power unit is entirely automatic. Other advantages cited are the quietness of the drive and its freedom from vibration at all speeds.

Cotton-Upholstery Loom

Finding that a number of mills were having their Cotton King looms widened out to meet a growing trend in the manufacture of cotton upholstery fabrics, Crompton & Knowles Loom Works, Worcester, Mass., has developed a heavier 4x1-box dobby loom (Type C4) of larger bobbin capacity to accommodate this trend. The new shuttles are 17 in. long, 1⅛ in. wide, by 1⅛ and 1⅞ in. tall. They take a bobbin 8¾x1⅛ in., as against the old Cotton King's 8x1⅛-in. bobbin.

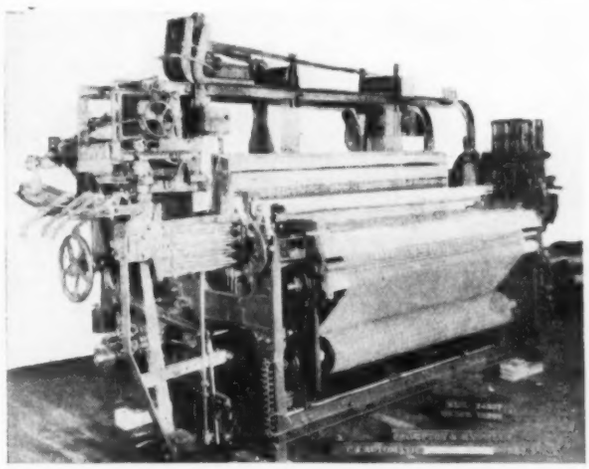
In addition to the increase in bobbin size, allowance has been made for a warp beam 24 in. in diameter, giving a 50% increase in yardage over the 18- and 20-in. beam; and the cloth roll has been increased from 16 or 18 in. to 22 in., affording a gain in cloth yardage of some 75%. Instead of the usual ⅜-gage dobby, a ½-gage is provided; and to allow for this the loom has been made 5½ in. deeper, back to front, than the Type C3 Cotton King dobby loom described in the October, 1934, issue of TEXTILE WORLD, page 113. Also, the throw of the crankshaft is 6½ in., as against 6 in. on the C3 and 5 in. on the old Cotton King. The loom demonstrated at the Southern Textile Exposition measured 68 in. between swords, had a 20-harness capacity, and was weaving a fabric embodying a 2100-yd. slubber roving in the filling.



Rock-Salt Dissolver

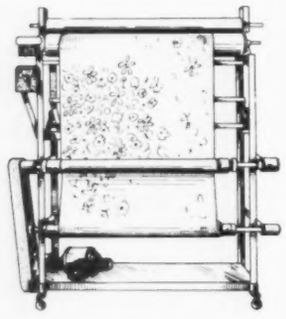
For preparing a pure, clear, uniformly saturated brine from rock salt, International Salt Co., Inc., Scranton, Pa., demonstrated what is known as the Lixate process at the Southern Textile Exposition. While a number of installations of the equipment employed in this process have been installed in textile mills for preparing brine used in dyeing and for regenerating zeolite water softeners, details of its construction have been released only recently.

As shown in the accompanying diagram, salt is fed from the hopper to the dissolver. Water enters through a spray nozzle at the top, percolates



through the recommended grade of coarse rock salt, and in its downward course becomes fully saturated brine which rises within the conical chamber and then flows to the storage tank. As brine leaves the dissolver, fresh water is automatically introduced by means of a float valve at the top. Outflow of brine is also controlled by means of a float valve in a storage tank. Both valves are regulated by cocks set permanently to keep the dissolver full of liquid for the most efficient operation, as well as for an adequate supply of brine for all requirements. Any insoluble material present in the salt is automatically removed by the lower mass of the salt bed, which is not dissolved, but remains as a filter through which the saturated brine must pass.

Of the various advantages cited for the Lixate process, the chief one is that it permits use of rock salt in place of higher grades, and thus results in important savings in cost of dyeing and water softening. Standard sizes of dissolvers range in capacity from 40 gal. of brine or 100 lb. of salt to 300 gal. of brine or 750 lb. of salt per hour.



Inspecting Machine

For unwinding, measuring, and inspecting silks, rayons, linens, and fine cottons, Peerless Textile Machinery Co., 133 Greene St., New York, has developed a machine known as the Tex-Master. The device handles open goods to 44 in. in width and 54 in. on the double. It records yardages of any length to ¼ yd., registration automatically ceasing when the last ¼ yd. is measured. Variable-speed control and adjustable tension bars add to the efficiency of the machine.

Spinning Frame Lever

To insure proper weighting on spinning frame top rolls, M & M Textile Lever Co., Box 1572, Greenville, S. C., is offering a new hook and lever arrangement. The lever, made of cast iron, has a large bearing surface designed to keep it horizontal and thereby minimize wear. A unique construction of the hook which holds the lever in a vertical position prevents friction on the sides of the stirrup by keeping it away from the steel roll. It is said never to require adjusting. Advantages claimed include saving of top roll covering, less end breakage and waste, stronger and more uniform yarn, and increased production. New spinning frames of all makes come equipped with this device when specified. The hook and lever arrangement has been thoroughly tested in mill operation, but was not announced formally until very recently.

Business Literature

Baldwin Duckworth Chain Sales, Providence, R. I., power transmission products, has appointed Edwin G. Parker as sales manager. Mr. Parker was purchasing agent for American Printing Co., Fall River, for 22 years.

Dyes. General Dyestuff Corp., New York. Color cards of dyes suitable for application to weighted silk from neutral or weakly alkaline bath, and Naphtol AS dyeings on silk.

Hand Trucks. Fairbanks Co., 393 Lafayette St., New York. Catalog describing new line of hand trucks.

Rubber Goods. B. F. Goodrich Co., Akron, Ohio. Booklet of engineering data designed to aid in selection of rubber belting, hose, etc.

Oiless Machines. Atwood Machine Co., Stonington, Conn., illustrated pamphlet describing machinery for rayon and silk.

Paint. Sherwin-Williams Co., Cleveland, Ohio. First issue of housing organ **Paint,** carrying, in addition to promotional literature, a center spread devoted to general material.

Recording Instruments. Esterline-Angus Co., Indianapolis, Ind. Booklet describing instruments used to picture plant performance.

Silk Soaking. E. F. Houghton & Co., 240 West Somerset St., Philadelphia. Folder describing four necessary factors in silk soaking.

Turbines. General Electric Co., Schenectady, N. Y. Three bulletins describing turbines for mechanical drives.

Microscopy. Bausch & Lomb Optical Co., Rochester, N. Y. Catalog listing equipment for dark-field microscopy and containing discussion of optical systems.

New Publications

Cotton Drawing and Roving, by Gilbert R. Merrill; published by author at 364 Varnum Ave., Lowell, Mass.; 54 mimeographed pages bound in red press board; 28 diagrams; $1.75.

Our congratulations to Professor Merrill on the publication of the second volume of what promises to be, not only the first treatise by an American on the processes of cotton-yarn manufacture, but one of the best discussions of the subject published anywhere. As in the case of the first volume, "Cotton Opening and Picking," published last fall, the author has written primarily for his classes at Lowell Textile Institute, where he is in charge of the cotton-yarn department. Hence, like the first, this book is directed primarily to the novice in cotton manufacture and is written simply, clearly, and in considerable elementary detail. It will, however, prove of interest to more experienced men in its coverage of recent improvements in the drawing and roving processes, and in its explanations and examples of the calculations for production, draft, etc.

The completeness of Professor Merrill's new book may be judged by the fact that it includes such topics as roll-covering (cork included), stop motions, adjustments and settings, maintenance, hank-clock operation, proper creeling and piecing up, long drafting, etc., in addition to the descriptions of the machines and their parts and how they work. Handsomely drawn diagrams are included.

Cotton Goes to Market, by Alston H. Garside; Frederick A. Stokes Co., New York. $3.50.

This book, written by the economist of the New York Cotton Exchange, contains a vivid description of how American cotton is produced, a travelogue of the cotton markets of the world, a lucid exposition of how cotton merchants operate in buying in country markets of the South, and in selling to the mills of this country, Europe, and the Orient, and a graphic analysis of the factors that cause cotton prices to advance or decline.

The problems involved in the marketing of American cotton are suggested, says the book, by the fact that the crop is produced by about 2,000,000 growers, spread over an area as large as France, Germany, Italy, and Spain combined, and is consumed by 3,000 mills distributed over the southeastern and New England sections of the United States, Canada, Europe and the Orient. The bales are held for an average of eight months, and they travel an average distance of 4,000 miles. The market value of world stocks of American cotton sometimes rises or falls by $75,000,000 or $100,000,000 from one month to the next.

The book, fascinatingly written, should interest those outside the cotton trade, those entering it, and those engaged in it. The author is well known throughout the world cotton trade. For several years he conducted an international service of cotton market reports, known as the Garside Cotton Service. He has been economist of the New York Cotton Exchange for the last six years.

A Primer of Money, by Donald R. Woodward and Marc A. Rose; Whittlesey House, McGraw-Hill Book Co., Inc., New York. $2.50.

The demand for a simple text whereby the layman may learn the A B C's of currency, and thus be able to understand something of what the present problem is all about, has been and continues to be great. Messrs. Woodward and Rose filled this need through their earlier book, "A Primer of Money and Inflation." Their new volume contains the revised and up-to-date texts of that work, together with several chapters of additional material. Thus, "A Primer of Money" is not merely a new edition; it is almost a new book.

Of particular interest are the chapters in Part IV, "The Present Crisis," in which the authors have much to say about current economic theories and the developments in the financial situation during President Roosevelt's administration.

Business News

H. Brinton Co., knitting machinery, has moved its New York office from 366 Broadway to new quarters in the Wilson Building, 1270 Broadway. This is at the corner of 33rd St.

Colgate-Palmolive-Peet Co., Jersey City, N. J., announces that A. F. Danz has been appointed manager of the Industrial Sales Department succeeding the late F. C. Ward. Mr. Danz has been with the company for more than ten years, and recently had been manager of the Pacific Coast Division. J. M. Geist, formerly sales manager of the New York Division, has been appointed sales manager nationally for the Industrial Department. F. C. Boeck, who assisted Mr. Ward, has been appointed assistant manager of the Industrial Department.

Robert J. Freitag, treasurer and secretary of the Steel Heddle Mfg. Co., Philadelphia, is celebrating the 25th anniversary of his service as an official of the company. A graduate of the Textile School of Zurich, Switzerland, he came to this country in 1898 to engage in silk manufacture in Philadelphia. He was one of the first users of the flat steel heddle, then in its infancy; this interest led to a close relationship with the Steel Heddle Mfg. Co., and in 1910 he accepted the secretaryship of the company. He was appointed treasurer in 1921. During his quarter-century of service, Mr. Freitag has seen the growth of the organization from limited production to a point where it now has three plants, in Philadelphia,, Greenville, S. C., and Montreal, with numerous domestic and foreign branches. A banquet was given recently in his honor by the directors of the company, when he was presented with a silver service.

United States Testing Co., at recent meeting in its New York office, elected new direcors as follows: Arthur Archer, Ward Cheney, R. D. Huffman, R. C. Kramer, Joseph Le Bauer, Frank Payan and Wm. J. Wells. The following directors whose terms had expired were reelected: N. Egawa, J. A. Goldsmith, Oscar Heineman and H. L. Van Praag. There are 10 other directors whose terms continue.

W. Chester Cobb, Arnold-Hoffman & Co., Inc., Providence, R. I., who for the last several months has been demonstrating textile chemicals in the Carolinas, has been put in charge of sales in Alabama and Mississippi. His headquarters will be at Huntsville, Ala., for the present. Mr. Cobb is a son of W. W. Cobb, superintendent, Norris Cotton Mills, Cateechee, S. C.

H. & B. American Machine Co., Pawtucket, R. I., has added to its southern sales force Fritz Zwiefel and R. Bingham Smith.

Turbo-Mixer Corp. is now located in its new offices at 247 Park Ave., New York.

Dubied Machinery Co., New York, has moved to 11-17 Beach St., two blocks north of its former location.

Revertex Corp. of America has moved its New York offices from 40 Rector St. to 80 Broad St.

Joel M. Barnes announces that the name of his organiation has been changed from the Barnes Textile Service to the Barnes Textile Associates, and that the firm's new address is 10 High St., Boston, Mass. Associated with Mr. Barnes are S. L. Duffett, J. R. Mason, N. M. Mitchell and D. K. Woodard.

Willcox & Gibbs Sewing Machine Co., New York, announces that William Wonnacott, managing director of its English company, is visiting this country.

Clinton Co., Clinton, Iowa, has added to its sales staff Grady Gilbert, formerly of Darlington, S. C., who will make Charlotte, N. C., headquarters.

Superior Appliance & Pattern Co. has taken over the Clearfield (Pa.) Knitting Machinery Co. which has gone out of business.

Hinde & Dauch Paper Co., Sandusky, O., has acquired the property and business of **Evans Fiber Box Co.,** Chicago.

Cowles Detergent Co. has moved from Euclid Ave. to 10525 Carnegie Ave., Cleveland, Ohio.

Hart Products Co., New York, textile chemicals, states that L. R. Unruh, southern manager, is for the present making his headquarters at the Concord Hotel, Concord, N. C.

TEXTILE WORLD ANALYST

Business is feeling better, thank you

Mill Activity Slump Reflects Cotton Curtailment: On the basis of still incomplete statistics, it is apparent that textile mill activity in April reflected the reduced production in cotton mills very decidedly. We estimate total consumption of textile raw materials last month at more than 10% below April of last year. However, the total for the first four months of this year was approximately the same as that for the corresponding period of 1934, although about 7½% under the first four months of the average year during the 1924-31 period, roughly assumed by us as normal.

THE textile situation has been so well publicized during the last month that it seems more profitable to turn our attention to the condition of general business. And that is decidedly better.

The country seems very definitely to have passed another one of those low spots which have dotted the course of the recovery movement. Strangely enough, the turn in feeling set in about the time when a seasonal slack in activity was to be expected. That fits in with the peculiar paradoxes we have had lately. When most indices were tending upward, sentiment was becoming more and more disheartened; and when the time arrived for a normal recession in activity, the country seemed to be feeling better daily. We have heard several explanations of this paradox but none seems quite satisfactory or sufficient. Possibly it can be blamed, like so many things, on human nature: Men are apt to discount both good and bad trends quickly, just as soon as they become actualities. That is, during the up-swing in the winter, there is always the fear of the recession in the spring—but when that time arrives, a bugaboo becomes merely a reality, and fear passes. That probably doesn't explain either—but at any rate it's an interesting idea.

The only reason for dwelling upon this—and it is, we feel, an important reason—is that, if we as a nation could only learn to take these swings of sentiment less seriously, we'd have less violent fluctuations, particularly in price-structures and in profits.

The chorus of optimism has been almost deafening at times—and from a variety of sources. Of course, it was not always expressed for the same reason. One group was anxious to show what good effect the Administration's program was having; while another was attempting to prove how hardy business was, despite "attacks" from the Administration, and to beg that the latter hold up its program so as not to retard improvement any more. So there you are. Quite a natural and healthy condition of affairs, in our opinion. It seems evident that the patient is getting better.

The textile situation, as we indicated above, has had plenty of publicity in the dailies. We have tried to interpret some of the many happenings in the front section of this issue. We should like to re-emphasize one statement made there: namely, that other branches of the industry have neither the sense of "crisis" nor the symptoms of it that the cotton division is suffering. Certain branches could use more business and better prices, of course, but this front-page "catastrophe" is really cotton's private party.

The wool division is the surprising one, when one remembers the sad trend of this industry last year. Statements like the following, from the New York Wool Top Exchange Service, seem incredible:

"The men's wear section of the wool goods manufacturing industry is in the best position in years. The largest producer is operating at an average of 90% of capacity and this rate of operations is exceeded by some of the smaller mills. Virtually all men's wear plants have sold up their output for May and June and are now soliciting orders for delivery in July and August. Prices show an advancing tendency and it is possible that values will go to higher levels before the end of the current quarter. Employment in the wool manufacturing industry continues at a high rate in most mill centers. Average wage in the industry now is 50c. an hour or on a par with 1929 rates."

The downward trend in prices, as reflected in TEXTILE WORLD's index numbers, was less in evidence during April than in previous months, raw cotton holding its own and raw wool declining only three points as against a loss of eight points for each of the preceding months. After making a relatively good showing in March when compared with raw cotton, gray cloth slid three points in April in the face of a static cotton index, thus reflecting unsatisfactory market conditions.

As to price trends of the last month, it will be noted from Tables I and II that margins on carded fabrics and yarns changed only slightly in April. Unfortunately, in the last week of the month, cloth and yarn prices were not adjusted enough to rising raw material prices, and consequently there was some drop in margin.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933....	21.4	December, 1934	16.2
October, 1933...	19.1	January, 1935...	16.2
January, 1934...	18.4	February, 1935..	16.0
April, 1934.....	17.6	March, 1935....	15.9
July, 1934.....	15.5	April, 1935.....	16.1
August, 1934....	16.6	Apr. 10.....	15.8
September, 1934	18.6	Apr. 17.....	16.4
October, 1934...	17.4	Apr. 24.....	16.3
November 1934.	15.8	May 1.....	15.9

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933....	23.5	December, 1934.	13.5
October, 1933...	20.0	January, 1935...	13.5
January, 1934...	18.3	February, 1935..	13.9
April, 1934.....	15.9	March, 1935....	14.4
July, 1934.....	14.7	April, 1935.....	14.1
August, 1934....	15.3	Apr. 10.....	14.0
September, 1934.	15.6	Apr. 17.....	14.2
October, 1934...	14.6	Apr. 24.....	14.2
November, 1934.	13.5	May 1.....	13.8

Textile World's Price Index Numbers

	Cotton Index Numbers				Wool Index Numbers				Silk Index
Date	Cotton	Yarns	Gray	Colored	Wool	Tops	Yarns	Cloth	Raw Silk
July 31, 1914..	100	100	100	100	100	100	100	100	100
1932, average..	51	76	73	100	78	97	115	128	34
1933, " ..	84	116	110	113	116	135	139	181	35
Jan. 1934.....	124	151	139	144	153	180	181	222	32
Feb. 1934.....	132	148	146	144	153	180	181	222	34
Mar. 1934.....	132	149	145	142	152	178	180	209	31
Apr. 1934.....	128	144	141	141	147	176	180	209	30
May 1934.....	125	136	132	140	140	166	170	209	27
June 1934.....	132	136	132	140	138	160	169	209	26
July 1934.....	135	148	136	140	138	159	161	209	25
Aug. 1934.....	141	150	136	140	130	150	160	209	25
Sept. 1934.....	138	148	149	144	127	145	155	190	24
Oct. 1934.....	133	141	143	140	125	140	154	188	26
Nov. 1934.....	134	136	138	140	124	137	154	190	27
Dec. 1934.....	135	136	139	140	124	136	154	190	29
Jan. 1935.....	135	138	137	140	124	132	154	190	32
Feb. 1935.....	134	138	136	140	116	124	152	190	31
Mar. 1935.....	127	136	134	139	108	118	148	190	29
Apr. 1935.....	127	135	131	138	105	114	148	190	30

Note: All cotton indices since Aug. 1, 1933, include processing tax.

TEXTILE WORLD'S

Cotton Digest

THE war news is printed in the front section of this issue. We shall devote this space to a peace-time project: National Cotton Week.

Personally, we have been completely surprised by the way in which retailers have maintained their interest, year after year, in this event. We were afraid, originally, that enthusiasm would wane after the first two or three "Weeks" and that the institution would die a lingering, but no less fatal, death.

Quite the contrary is true. It seems to us that the virility of retail support increases each year. This would not be true, of course, if the Cotton-Textile Institute did not continue to do a thorough and intensive job as the prime-mover in this promotion. In fact, we should think some* cotton manufacturers would be a little ashamed when they compare their own apathy with the aggressiveness of the Institute and of the retail trade—especially when they (the manufacturers) consider that it's *their* goods that are being sold.—*Editor.*

*Mind you, we said "some."

"Bounty Plan Certainty!" Declares Lamport

"The Lamport cotton bounty plan will be adopted by the Administration within the next 30 days!" declared Samuel C. Lamport, sponsor of the plan, in an interview with a TEXTILE WORLD representative. Mr. Lamport, chairman of the cotton tolerance committee of the Textile Exporters Association and affiliated with important exporting, manufacturing and merchandising firms, was caught on the wing at Greenville, S. C., en route to Washington, D. C., following a visit to several southern States.

"Growers, shippers, mill workers and manufacturers—particularly manufacturers—all are vitally interested in seeing this plan put into practice," he continued enthusiastically. "And why not? We have been under a stop-gap plan of paying $38.50 per bale for destroying cotton. This reverse-gear policy is over! From now on you are going to see some constructive legislation—less hot air and conventions! The American cotton industry is waking up to the fact that it is the worst organized industry in the country. It should be the best organized, since it represents 12,000,000 people."

At this point Mr. Lamport took time out to telephone the governors of two States and invite them to New York for the opening of National Cotton Week. He continued: "You are familiar with the plan of course. It calls for the Government to sell, first of all, 500,000 of its 5,500,000 bales of cotton to the mills at market price, which is about 12c. lb. Just as though it were being made for domestic consumption, the mills will turn this cotton into goods at regular American hours and wages. Then, as soon as the mill can show evidence of shipment to a foreign country, the Government will rebate 7c. ($35 a bale) of the original 12c. lb.—thereby setting up a differential which would offset the cheapest of foreign labor—and yet not affect the standard of American labor.

"The plan involves no Treasury outlay. There would be simply a book loss of $17,500,000 on the first 500,000 bales. Over a period of three years it would amount to $58,000,000, relatively little as compared with present relief expenditures.. This, you understand, would not be permanent—simply an emergency measure."

•

Japanese Looms Discussed by House

Before the House of Representatives recently the Hon. Edith Nourse Rogers, Massachusetts, said: "I wonder how many members realize the tremendous competition that Japan has given the United States in the matter of looms. They have invented a remarkable loom that competes to our disadvantage." She quoted from a report by Vice-Consul J. E. Newton dated Oct. 19, 1934, in which it was stated that the Toyoda looms are made in 38-, 42-, 44-, 50- and 58-in. widths and that the weaver tends 30 to 40, running at 190 to 250 picks for the 38-in. width, up to 220 for the 44-in., and up to 210 for the 55-in.

The only test data comparing the performance of Toyoda and Northrop looms to be published (*Journal of the Textile Institute*, March, 1932), plainly showed the Toyoda inferior, in spite of its higher recommended speed, due mainly to the more than double number of loom stops caused by warp breaks and other difficulties, these resulting in an efficiency of 84.6% for the Toyoda as against 92.8% for the Northrop. It is important to note that the tests on which the data were based were made under English weaving conditions, which do not permit full advantage to be taken of the multiple-loom system, to which the Northrop machine is especially suited. Although the Toyoda loom has probably since been improved in design and construction, the American loom, it is well known, has been very extensively improved, as exemplified by the current X model. It is felt that there is little basis for the fear that Japanese weaving machinery has surpassed ours in efficiency.

•

Slams U. S. Marketing

Delegates to the 17th International Cotton Congress, held in Rome, Italy, passed resolutions censuring America for false-packed bales, methods of marketing, and the deteriorating quality of the cotton. Although delegates privately expressed their opposition to the pegging of cotton at 12c. by the AAA, no official action was taken.

•

Spinners Met at Clemson

The Spinners Division of the Southern Textile Association held its spring meeting, Saturday morning, May 11, at Clemson (S. C.) College. The technical discussions were held in the engineering auditorium.

•

Style Show at N. C. State

Miss Ruth Williams, of Roseboro, representing Peace Junior College, Raleigh, was awarded the grand prize at the annual style show and exposition held at Raleigh by the North Carolina State College Textile School, in cooperation with the home economics departments of nine North Carolina colleges for women. Miss Williams wore a coat suit made of green and white waffle cloth designed and woven by Students E. L. Bolick, of Hickory, and H. D. Carpenter, of Lincolnton.

•

Speak at Sea Island

George N. Peek, special advisor to President Roosevelt on foreign trade affairs, and Barry Wright, Georgia attorney, who has represented many mills at hearings before Textile Labor Relations Board, were scheduled speakers at the annual convention of the Cotton Manufacturers Association of Georgia, held May 16 and 17, at The Cloister, Sea Island Beach, Ga.

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Callaway Mills Cleared

Callaway Mills, La Grange, Ga., were found not to have violated Section 7 (a) or the Cotton Textile Code, in a decision rendered May 11 by the Textile Labor Relations Board. The board found that the charges against the company were not sustained by the evidence.

•

Closes Two Units

Mills Nos. 1 and 4 of the Chadwick Hoskins Co., Charlotte, N. C., were closed down indefinitely in April, affecting some 650 employees. B. B. Gossett, president, stated that demoralized business conditions caused the shutdown.

Fabric Tone Uneven

Moderate improvement is manifest in certain branches of the goods market. While gray goods have been dull, wash goods, thanks to favorable weather have been especially active, with numerous reorders. Denims appeared to be on the way to higher levels; market tone was strong and manufacturers complained that 2.20s at 14½c. still did not permit adequate margin. Sheetings showed no acceleration, but continued their steady turnover of recent weeks.

While current market tone is still far from ideal, spinners entered May in rather hopeful mood. One factor contributing to this feeling is that April business showed a definite improvement over the same month last year; some estimated that it was nearly 50% better.

•

March Operations

Statistics of particular interest to cotton manufacturers, showing March operations and the raw material situation, were:

Spindle activity	92.9% capacity, or 6,662,549,593 spindle hours
Cotton consumed	481,135 bales
Cotton exported	317,798 bales
Cotton imported	9,917 bales

February operations for comparison:

Spindle activity	100.2% capacity, or 6,575,356,524 spindle hours
Cotton consumed	478,291 bales
Cotton exported	390,294 bales
Cotton imported	8,137 bales

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Cotton Industry Briefs

Carolina Cotton & Woolen Mills Co., Spray, N. C., with 15 mills in North Carolina and Virginia on April 15 inaugurated a centralized employment bureau located at Spray.

Charles R. Collins has been appointed southern representative of Boshamer & Co., Philadelphia, Pa., covering Virginia, North Carolina, South Carolina and eastern Tennessee, with headquarters at 183 Stratford Road, Asheville, N. C.

John R. Kenworthy, with offices in the First National Bank Building, Amsterdam, N. Y., will represent Boshamer & Co., of Philadelphia, Pa., in the Mohawk Valley section of New York State, on carded and combed yarns.

•

Cotton Financial Notes

Helen Mills of Alabama, Huntsville, Ala., has been sold to the Werthan Bag Co., Nashville, Tenn., on its bid of $22,500 in a public receivership sale which will bring the bondholders only about 10%, according to Jere Murphy, referee in bankruptcy. The mill machinery will be removed to Nashville.

Ozark Mills, Gastonia, N. C., has been placed in hands of J. M. Rivers as receiver. It is understood plant will be sold or dismantled.

Spencer Corp. property in Spindale and Rutherfordton, which includes the textile plants formerly known as the Spindale, Spencer and Cleghorn mills, was sold April 27, subject to court approval. The highest bid was $305,000, submitted by B. Frank Dew for the Spencer Mills, Inc., a corporation organized by the creditors. E. H. Timanus has succeeded L. M. Carpenter as manager of the mills.

Lawton Spinning Co., Woonsocket, R. I., will be liquidated. F. S. Peck, chairman of the board and W. O. Todd, secretary-treasurer, have been appointed liquidating agents.

Consolidated Textile Corp. reports net loss for 1934 of $766,736 compared with net loss for preceding year of $229,227. Sales for 1934 totaled $8,370,960 against $7,347,379 in 1933.

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Cotton Mill News

Puritan Novelty Yarn Mills, Inc., Bridgeport, Conn., has incorporated with $50,000 and taken over the Toulson Novelty Spinning Co., 780 Union Ave., Bridgeport. William A. Redden, Morton Weiss and Shirley M. Hall are the principals.

Palmer Brothers Co., New London, Conn., manufacturers of curtains and comfortables, will centralize production operations at its Fitchville plant for the sake of economy. The New England Carpet Lining Co., which also used part of the Palmer plant at New London, will move to Fitchville.

Lees Mfg. Co., Westport, Conn., has awarded to Harry Maring, Jr., Inc., Bridgeport, a contract to build a three-story mill addition, of brick, 20x50 ft., with slag roof.

Pepperell Mfg. Co., Lindale, Ga., has purchased 35 Saco-Lowell 40-inch cards, the new machinery is being installed in Plant No. 1, replacing the scroll cards that were recently scrapped.

General Webbings Corp., Springfield, Mass., has been organized with capital of $25,000, to operate a local mill. New company is headed by Thomas B. Malone, president, and Patrick A. Doyle, 57 Webster St., Springfield, treasurer and representative.

Firestone Cotton Mills, Inc., Gastonia, N. C., have been chartered under State laws with capital of $2,000,000, as a subsidiary of the Firestone Tire & Rubber Co., Akron, Ohio. Company has purchased the local Loray Mills of the Manville Jenckes Co. and will operate new plant for production of cotton fabrics for parent organization. Robert & Co., Inc., Atlanta, Ga., architects and engineers, have been engaged to prepare plans for certain improvements in the mill, as well as mill village for operatives at the plant.

American Yarn & Processing Co., Mount Holly, N. C., has acquired the former local mill of the Catawba Spinning Co., defunct, closed for a number of months, heretofore held by the Town of Mount Holly and County of Gaston, secured at a foreclosure sale. Machinery and equipment were removed from the mill some time ago. New owner is said to be planning to re-equip the plant and resume operations.

Cleveland Cloth Mills Co., Shelby, N. C., has awarded general contract to A. A. Ramsey, Shelby, for new two-story addition, 40x80 ft., to be used largely for storage.

Consolidated Textile Corp., Shelby, N. C., has not installed 36 carloads of machinery as reported in these columns last month. Its manager purchased 36 cards for the Postex Cotton Mills, Post, Tex., whence the garbled report from our correspondent.

Valdese (N. C.) **Mfg. Co.,** hosiery and underwear yarns, are completing a small addition to their main building in which two of the latest model spinning-frames will be installed.

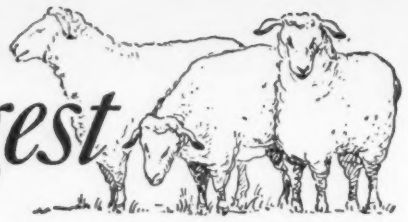
Interlaken Mills, Providence, R. I., have let general contract to the J. F. McCusker Co., West Warwick, R. I., for new one-story addition to mill at Arkwright, 100x100 ft., estimated to cost over $70,000, with equipment. C. R. Makepeace & Co., Grosvenor Building, Providence, are engineers.

Dunean Mills, Greenville, S. C., have work under way on a new one-story addition, designed to house 200 new looms, installed to balance their equipment. Structure is expected to be ready for service in June. General contract was let recently to the Fiske-Carter Construction Co., Greenville. J. E. Sirrine & Co. are engineers.

Dominion Textile Co., Montreal, has decided to close down, in a few weeks, that portion of its plant in King's Park, Verdun, devoted to cotton fabric manufacture and to transfer much of this machinery to other plants. The rayon weaving branch continues at Verdun.

TEXTILE WORLD'S

Wool Digest



ARDENT shouter that we are for the cooperative wool promotion plan, we nevertheless consider it valueless unless it is backed up by styling and merchandising aggressiveness on the part of individual manufacturers. Consequently, every new indication of such aggressiveness cheers us on.

As one of the latest examples of what we mean, we can cite the "Coolaine" campaign staged by Forstmann Woolen Co. First, styling ingenuity was projected into the creation of this fabric. The weave and finish have produced a material which enables this company to compete with products of other fibers for business in "dog-days"—a period once regarded as a blind-spot for wool dress-goods. But styling ingenuity is only part, and a very incomplete part, of the story. It was supplemented by merchandising ingenuity, so that women soon became conscious of "Coolaine."

This is not the first excellent job of this sort that has been done in the wool branch of the industry, of course. But the number to date has not been any too large. It has been confined to too few firms. It is to be hoped that the impetus from the cooperative campaign will increase this number. The alternative may easily be the obituary page.—*Editor.*

Bureau of Labor Reports on Wool Industry

Indication that the wool industry has made a fine record in living up to the provisions of the code is contained in the report on wages, hours, and working conditions in the woolen and worsted industries released by the Bureau of Labor Statistics. This is the third report made as a result of an Executive Order following the general strike last September, the two previous ones covering cotton, and silk and rayon. Finishing of the various textiles will be covered in a forthcoming report.

Only 0.7% of the total workers covered by the study were employed at less than the minimum wage and some of these may be accounted for by exemptions granted to sub-standard workers under an Executive Order, according to the findings. The available evidence also suggests a high degree of compliance with the provision that workers previously receiving more than the minimum should have their hourly rates raised so they would receive as much for a 40-hour week as for the longer week before the code.

Employment averaged 194,500 in 1923, 165,000 in 1925, 110,500 the first quarter of 1932, 163,000 in August, 1933, and 110,200 in August, 1934. Technological improvement is given as one reason for the displacement of labor.

•

Start Fall Women's Wear Season

Women's wear fall lines are opening here and there, but the predominance of style factor makes many cutters cautious and volume may not develop till later on. Coatings and suitings are the lines being offered at present with dress fabrics to come later. The popular priced lines range from 80c. to over $1, medium lines around $1.37½ and fine lines from around $1.75 to over $2. The coating groups show numerous fancy weaves. Before the end of May it is expected that additional houses will put their offerings on the market.

•

Men's Wear May Rise

Although market trends these days often play tricks on those who would anticipate them, there are signs of an impending price-advance in some quarters of the men's wear market. The guess is based chiefly on the recent withdrawal of a number of lines which doubtless will soon be reinstated on a more profitable basis. Conservative sellers argue that these may be only readjustments and not a general movement, since opinion favors the fostering of volume business at figures to encourage forward buying and broad distribution.

Mills have achieved this end in men's wear as the orders already placed for fall are so large as to attract close scrutiny in some houses. If the wool situation became firmer there would be better founded reason for a fabric upturn. Even though the first quarter of 1935 witnessed much greater consumption of the raw material than in the similar period of 1934, and the reduced popularity of manipulated goods this year makes it likely that wool consumption will run better than average through the season, the wool market remained uncertain and tops definitely declined during April.

The men's wear market has slipped into a between-seasons period, but the mills are active. Several are reported late on spring deliveries, but with buyers accepting just the same. May and June should prove active months for running on fall goods, as buyers are stocking up in advance rather than waiting until the last minute. Reports are current that the American Woolen Co. is operating at 90% capacity of its active mills and is carrying a payroll of 26,000.

•

Appoint Department Heads for Wool Promotion

The Executive Committee of the Associated Wool Industries, on May 2, appointed Miss Susan Bates, as fashion director; Mrs. Minna Hall Carothers, as publicity director; F. B. Todd, as merchandising director.

Miss Susan Bates was for several years associated with the New Uses Section of the Cotton-Textile Institute as trade and fashion counsellor, prior to which she was employed by the Home Economics Division of the Department of Agriculture. She has had extensive experience in styling. As fashion director of the wool promotional work her duties will consist of gathering fashion news, assembling information for fabric reports and style bulletins, contacting retail stores as well as the industry itself and furthering the use of wool through new markets.

Mrs. Minna Hall Carothers has been connected with various advertising agencies as account executive, and headed the Minna Hall Simmons Service Agency. She is now first vice-president of the Woman's Press Club of New York, and is a former president of the Federation of Women's Advertising Clubs of the World. As publicity director her responsibilities will include cooperation with the trade and consumer press and magazines, in the preparation and presentation of fashion and editorial material, together with the preparation of promotion matter for use by stores.

F. B. Todd has been connected with the wool industry for 20 years, for several years on actual machine operation and designing. For eleven years he was a partner of F. B. Todd & Co., wool and mohair brokers. In 1934 he was appointed field secretary of the National Wool Trade Association for the purpose of making an intensive survey of the wool industry, preliminary to the organization of Associated Wool Industries. As merchandising director, his duties will include the betterment of merchandising methods in the promotion of wool throughout the country, through contacts with the association membership as well as the wholesale and retail trade.

•

Tops Off for Month

The price of Wool Top Exchange's standard certificated spots dropped 3c. from 80c. to 77c. during the week of April 22, being fairly steady before and after this sharp change. Futures had indicated the declining trend and the readjustment of spots was necesrasy. The May contract, which closed

on March 30 at 74c. to 75c., closed May 3 at 71.1c. to 73c.; similar comparison on the December contract is 74c. to 75.6c. and 74c. The trading in futures has been on a small scale, though fairly broad.

•

Wool Demand Relaxes

Demand for wool is less keen. Slight price irregularities noticeable here and there are ascribed mostly to the poor selection available. Consumption for the time being seems to have passed its peak. While the use of wool for the first quarter of this year was far ahead of the corresponding quarter of 1934, a declining tendency is seen in consumption of apparel wools. Thus the weekly consumption, scoured basis, in January was 5,549,000 lb.; February, 4,838,000; March, 4,621,000. April, it is believed, continued that trend. Manufacturers are now awaiting reaction to fall fabric lines which have been opened to date.

Topmakers continue to purchase fair quantities of original bag wools. Wools, in the main, sell for what they are worth. There is no price fixing or price control. The marketing of wool, whether Government-consigned or individually-owned, is carried on according to the composite judgment of the trade as disclosed in its weekly meeting with the wool and mohair advisory committee. However, sellers of spot greasy combing wools are insistent on firm rates for good to choice wools.

•

Wool Stocks Show Decline

Stocks of raw wool (scoured basis) held by dealers, topmakers, and manufacturers were 134,455,000 lb. (excluding carpet) on March 30, according to figures compiled by the Bureau of the Census in cooperation with the industry. This compares with 170,004,000 lb. on Dec. 31, 1934; 192,345,000 lb. on Sept. 29, 1934; and 176,292,000 lb. on June 30, 1934. Stocks in dealers' hands showed a marked decline from 121,030,000 lb. on Dec. 31 to 83,287,000 lb. on March 30. Raw wool held by topmakers and manufacturers increased from 48,974,000 lb. on Dec. 31 to 51,168,000 lb. on March 30.

The top total on March 30 was 19,197,000 lb., as compared with 27,442,000 lb. on Dec. 31; 30,165,000 lb. on Sept. 29; and 31,348,000 lb. on June 30, 1934. Manufacturers held 14,786,000 lb. of the total on March 30. Total stocks of noils were: March 30, 10,175,000 lb.; Dec. 31, 10,942,000 lb.; Sept. 29, 11,440,000 lb.; June 30, 1934, 14,913,000 lb. Stocks of carpet wools, given for the first time on a scoured basis, were 28,419,000 lb. on March 30.

•

Activity of Industry

Current statistics on wool consumption and mill activity follow, the activity percentage being based on single 40-hour shift, 5½ days per week.

Wool consumed:	February	March
Total clean equiv. (excluding carpet)	19,328,000	23,108,000
Carpet wool (grease)	5,980,000	10,751,000
Looms (50" wider) .	111.4%	103.1%
Carpet looms	56.9%	65.2%
Combs	110.8%	118.1%
Worsted spindles ...	88.4%	75.7%
Woolen spindles ...	117.8%	103.6%

WOOL IN THIS ISSUE

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Wool Industry Briefs

Code Authority for Wool Textile Industry has offered an amendment to the Rules for Merchandising Wool Tops to the effect that it shall constitute an unfair trade practice to sell tops "at value," or at a temporary price subject to future adjustment.

Henry Clough has succeeded **Lord Barnby** as head of the Wool Industries Research Association of Leeds, England. Mr. Clough has been with the organization since its inception in 1918 and Lord Barnby had been chairman seven years.

William G. Becker, for the last 12 years with A. D. Juilliard & Co., has joined the worsted division sales staff of Pacific Mills.

"Rustiques," a group of deep cloudy pastels and rich autumn tones, represent an important fashion motif in the collection of 48 fall woolen colors just released in new confidential brochure form by the Textile Color Card Association to its members. These restrained, mellowed shades have decided merchandising importance for dresses, country clothes and children's wear.

Philip B. Weld has been nominated for re-election as president of the Wool Associates of the New York Cotton Exchange; Arthur R. Marsh as first vice-president; Joseph R. Walker, second vice-president, and Clayton B. Jones as treasurer. Election will be held June 3.

The 52d semi-annual meeting of the National Association of Woolen and Worsted Overseers will be held at Rocky Point, near Warwick, R. I., on Saturday, May 18. The "Nite Before" will be held at the Narragansett Hotel in Providence, Friday evening.

Institute of Carpet Manufacturers of America has set the week beginning Aug. 5 as the period for formal opening of the fall, 1935, season.

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Wool Financial Notes

Brookside Woolen Co., Glastonbury, Conn., is to organize under provisions of 77B of the Bankruptcy Act. Current liabilities are $118,232 and current assets are $91,822. Total assets are however, $224,408.

Naugatuck (Conn.) **Mills,** woolen goods, has filed bankruptcy papers and lists liabilities and assets respectively, $10,417, and $14,000. F. B. Rollinson, treasurer, lists cash on hand at $7.31.

M. J. Whittall Associates, Ltd., Worcester, Mass., have arranged for an RFC loan of $500,000, fund to be used for working capital. A considerable part of the appropriation will be utilized for raw material purchases.

Hamilton Woolen Co., Southbridge, Mass., which is liquidating, having sold its property to interests allied with **J. P.** Stevens & Co. and Ames Worsted Co., has paid its first liquidating dividend of $35 per share on 30,855 shares outstanding. It is hoped to pay an additional $5 on completion of the liquidation.

Wool Mill News

Oxford (Mass.) **Spinning Co.,** recently organized, has acquired local mill of Andrew Howarth & Son, Inc., known as the Oxford Woolen Mills, at a public sale, and will occupy for new plant.

Carleton Woolen Mills, Inc., Rochdale, Mass., have been organized with capital of 700 shares of stock, no par value, to take over and operate the former local mill of E. G. Carlton & Sons, recently acquired by Edward P. Leveen, New York, who will be treasurer of the new company. Work is under way on extensions.

Uxbridge (Mass.) **Worsted Co., Inc.,** has taken over plant of the Adams-Swirles Cotton Mills, Macon, Ga., as previously noted, and will remodel and equip at once for branch mill. Company has engaged J. E. Sirrine & Co., Greenville, S. C., to prepare plans for a new mill unit, estimated to cost $80,000, with equipment.

Cocheco Woolen Mfg. Co., East Rochester, N. H., is reopening with about 400 employees. Wellington Rindge has succeeded George A. Adams as president. Fulton Rindge, treasurer of Gonic Mfg. Co., is now treasurer of Cocheco also. William Morrill has been appointed agent.

Gonic Mfg. Co., Rochester, N. H., is initiating a modernization program involving installation of 96 automatic looms to replace present equipment.

Texas Woolen Mills Corp., San Antonio, Tex., recently formed by M. C. Cotton, 202 Burt Building, Dallas, Tex., and associates, previously referred to in these columns, is making equipment purchases for proposed new mill at San Angelo, Tex., to consist of a 10-set mill with 100 looms and 7,800 spindles. It is proposed to award general contract for initial mill units at early date. Plant is expected to represent an investment of more than $650,000, instead of smaller sum previously noted. F. E. Smalley, 127 North Winnetka St., Dallas, is acting secretary and treasurer.

Parsons (W. Va.) **Woolen Mills,** idle since last November, have been reopened. A. L. Granger, of Vermont, is the new superintendent.

Chippewa Falls (Wis.) **Woolen Mill Co.** will build a new two-story addition to mill, 27x55 ft., in connection with new one-story boiler house extension, 18x34 ft. Program will be carried out by day labor, and is reported to cost about $40,000, with equipment. Carl Volkman, Eau Claire, Wis., is architect.

Monticello (Wis.) **Woolen Mills** have purchased the machinery and equipment of the Barron (Wis.) Woolen Mills, idle for a number of years.

TEXTILE WORLD'S

Rayon Digest

IF you want a really good hot argument, get a group of textile technicians together and ask them what they think of the future chances of rayon in automobile tires. You will get probably as many different shades of opinion as there are men present.

Obviously, then, it is difficult to make any positive statements concerning that future. But it is equally difficult—in fact, it is impossible—to make a negative statement on this subject. Anyone who cares to risk his reputation on the assertion that rayon will *not* be an important tire-fabric material some day, cares less about his reputation than we do for ours.

And the reason for this, in our opinion, is that rayon is not just one thing but so many different kinds of things. When some one says rayon is not suitable for such-and-such a purpose, he is thinking of the regular knitting or weaving rayon. But how about "Cordura," the newly-developed rayon to be used in tires, according to Lammot du Pont? "Strong as structural steel of the same cross-section," he described it. "It also has low elongation, and a very harsh and unpleasant feel compared with the rayon designed for fabrics," he continued; "it possesses, however, unparalleled resistance to heat degradation."

Who can say what *such* a rayon can do? So long as the chemist and engineer can "build" synthetic fibers to meet specific conditions, no one can say what those fibers *can't* do.—*Editor.*

150d. Back to 55c. In New Price Cut

As a climax to weeks of sub rosa price-cutting, reductions were announced last month in the prices of rayon yarns made by all three processes. In the viscose process branch, the revision represented an average cut of 5c., in cellulose acetate and in cuprammonium a cut of 10c. The revision was initiated April 16 by the Viscose Co., which firm made public a new price list on viscose yarns, cutting the price of 150 denier, 40 filament, key number, from 60c. to 55c., thus cancelling the two advances announced last December and sending 150-40 back to the May, 1934, levels. The Viscose Co. in a statement said the prices had been lowered "to establish confidence and provide a firm foundation for the future."

The cut occasioned some surprise, since viscose yarn prices were not regarded as the chief offender in the market weakness. Acetate prices, which had never properly rallied to the Viscose Co.'s December, 1934, increase, have been more or less a football. News of the Viscose Co. revision on viscose yarns brought an unofficial reduction of acetate prices and the new levels on these became established quickly. While generally observed the new acetate levels are not in lists. Cuprammonium yarn prices were cut in conformance with the rest of the trade. By the end of April, all synthetic yarn levels, with a few unimportant exceptions, had settled at the lower scale.

Customer reaction to the revision is divided. While recognizing the need for stable prices on which to base fall plans, weavers were far from convinced that the bottom had been reached.

The new Viscose Co. price list follows:

		Bright, Dulesco Filenza		Chalkelle	
		Skeins	Cones	Skeins	Cones
Den.	Fil	1st qual.	1st qual.	1st qual.	1st qual.
50	14	$1.05	$1.10	$1.07	$1.12
75	30	.85	.90	.87	.92
100	40	.74	.77	.76	.79
100	60	.76	.79	.78	.81
125	36	.63	.65	.65	.67
125	75	.68	.70	.70	.72
150	24-40	.55	.55	.57	.57
150	60	.57	.57	.59	.59
150	100	.60	.60	.62	.62
200	30	.54	.54	...	...
200	75	.57	.57	.59	.59
200	150	.60	.60	...	...
300	44	.47	.47	.49	.49
300	60	.47	.47	...	...
450	100	.47	.47	.49	.49
600	100	.47	.47	...	...
900	100	.47	.47	...	...

Following is the new price list on cuprammoniums by the American Bamberg Corp.:

Denier	Converted	Denier	Converted
30	$1.40	120	$.68
40	1.25	150	.60
50	1.10	180/200	.57
65	1.00	240/250	.53
75	.90	300	.50
100	.79		

Matesa (dull yarn)—2c extra.

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A Boomerang, Maybe?

Recent dispatches from Tokyo state that the Japanese Ministry of Commerce and Industry is anticipating a possible slump in the call for rayon merchandise due to tariff walls, and is looking for an "out." Of the whole textile industry in Japan, rayon is most likely to find itself in a serious state of overproduction, the authorities fear; dispatches add that, unless checked Japan's rayon output will total 200,000,000 lb. this year, thus challenging the United States as the largest rayon producer.

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Acetates Show Decided Pick-Up

One of the surprise features of early May in the yarn market was the decided improvement shown by acetates both as regards current and advance contracts. This branch which had been weak, if not downright sickly, in the middle of the first quarter, has strengthened progressively in recent weeks. Prices are considerably firmer, indeed, a few optimistic factors even talk of a price advance in mid-summer. It was estimated May 7 that if demand continued at the prevailing pace for another two weeks, the acetate producers would be sold up to capacity in June.

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Yarn Call Only From Staple Mills

Adjustment to the new price levels proceeded slowly in the viscose market at the opening of May. While producers insisted there would be no further reductions, customers were dubious and this uncertainty, plus the fact of a poor broadgoods season, made for light buying. The manufacturers of staple fabrics, such as twills, lining, etc., placed modest fill-in orders for yarns, but the weavers of novelty and other style fabrics were extremely cautious. Viscose yarn demand was expected to pick up for one fair-sized flurry before the real summer slackening developed; such, at least, was the trade's hope.

Curtailment remained an important consideration among yarn producers. It was unofficially reported that certain of the smaller plants had cut output from 80% to 70% of capacity; the chief rayon companies have not yet changed their schedules appreciably, but are ready to do so when accumulating stocks warrant.

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Rayon Now Used In Tire Construction

The nearest approach to a concrete picture of what the rayon industry might hope for eventually as regards the use of rayon in automobile tire manufacture, was contained in an address delivered by Lammot du Pont, president of E. I. du Pont de Nemours & Co. last month before the American Chemical Society in New York. Due to the dearth of available information on the subject and the secrecy surrounding current development work, Mr. du Pont's statement excited wide interest. He told of the development of "Cordura," a new rayon cord for tire manufacture. Mr. du Pont's complete description of "Cordura" follows:

"The recent development in rayon cords should extend still further the life

of a tire, and should double or triple the mileage of heavy duty bus and truck tires. This rayon, designated 'Cordura,' was made possible by recognition, on the part of the rayon chemist, of the unique characteristics that could be developed in rayon under certain conditions of manufacture.

"This rayon has great strength and is as strong as structural steel of the same cross-section. It also has low elongation, and a very harsh and unpleasant feel compared with the rayon designed for fabrics. It possesses, however, unparalleled resistance to heat degradation. In cooperation with the rubber chemist, this rayon has now been used successfully in tire construction and promises to be another important contributing factor to prolonging still further the life of the automobile tire."

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Japan's Gain Laid to Low Output Cost

The causes of the remarkable growth of the Japanese rayon industry from a yearly output of 780,000 lb. in 1923 to 99,500,000 lb. in 1933 and 150.000,000 lb. (estimated) in 1934, are analyzed in an article in April *Textile Organon.* Pointing out that Japan's rayon industry has three main branches—rayon for domestic consumption, rayon yarn exports and rayon merchandise exports—the article emphasizes the light industrial costs in Japan. With labor paid extremely low rates—male workers receive from 24c. to 45c. daily, female workers from 15c. to 25c. daily—labor is a much smaller part of production cost than in other countries.

Comparative production costs of rayon yarn in five countries are given in the table reprinted below, but the article cautions the reader against too literal interpretation of the table. It is emphasized that there is no exact measure for gaging rayon production costs in the United States.

REPORTED PRESENT COST OF RAYON YARN PRODUCTION IN FIVE LEADING COUNTRIES

In Yen and Cents (at 30c Yen) per Pound

	Pulp & Chemicals			Wages & Power		
	Yen	Cents	%	Yen	Cents	%
U.S.A.	.478	14.3	32	.736	22.1	50
Gr. Britain	.462	13.8	36	.578	17.4	45
Germany	.412	12.3	37	.509	15.1	45
Italy	.353	10.6	46	.328	9.7	43
Japan	.270	8.1	50	.200	6.0	37

	Bus. Expenses			—Total Cost—		
	Yen	Cents	%	Yen	Cents	%
U.S.A.	.270	8.1	18	1.484	44.5	100
Gr. Britain	.240	7.2	19	1.280	38.4	100
Germany	.200	6.0	18	1.121	33.4	100
Italy	.088	2.7	11	.769	23.0	100
Japan	.070	2.1	13	.540	16.2	100

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Paul Zens to Head New Furness Firm

After confirmation by Judge Avis, of Camden, N. J., of the reorganization of the Furness Corp., rayon manufacturers, of Gloucester, N. J., made known this month, those sponsoring the reorganization made rapid progress to that end. First, the name of the firm was changed to New Process Rayon, Inc., then election of officers was held, resulting in the selection of Paul Zens, treasurer of Edward G. Budd Mfg. Co., as president. Other officers chosen were Hudson W. Reed, of the United Gas Improvement Co., vice-president, and J. Vernon Pimm, secretary. Mr. Zens also will serve as treasurer. The board of directors comprises: Mr. Zens, S. F. Hansell, Harry W. Harrison, Mr. Reed, D. S. Mallory, treasurer, Industrial Rayon Corp., and Dr. Arthur Mothwurf. Later it was announced that Dr. Mothwurf, who formerly was president of American Bemberg Corp., would be general manager of the new company. M. S. Serinis, chemist, will be production manager. Both Dr. Mothwurf and Mr. Serinis had served with the company prior to its change of identity.

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Belamose Rechristened

Announcement of a change of name and of installation of equipment which increases production, was made by Belamose Corp., Hartford, Conn., last month. The company now will be known as the Hartford Rayon Corp. The extent of increase in capacity permitted by the added equipment was not made known. The present capacity of the company approximates 3,500,000 lb. yearly. No other changes either in policy or personnel are projected.

•

Spun Rayon Paragraphs

A new staple fiber producing company, to be known as the Staple Fiber Developments, Ltd., has been formed in England. It is understood that the new firm will be capitalized at about $10,000,000; it will manufacture viscose staple fiber on a large scale in various parts of the British Empire.

Looks like serge—The Paris firm of Lebotys has developed a novel new spun-rayon fabric which looks not unlike a silky serge; it is offered in light gray mixtures with variations of colored squares scattered at intervals in jacquard.

Italy's exports of staple fiber increased 300% in 1934 over 1933, according to the annual report of Snia Viscosa. The increase in staple-fiber sales was a dominant feature of the report; the Snia company accounts for 60% of the world's output of this fiber.

Control of a new company which has just been formed in Kassel, Germany, to make rayon staple-fiber cellulose, known as "Stapelfaser," will be in the hands of the German Glanzstoff interests, it is indicated. Current reports state that Glanzstoff has subscribed 5,000,000 marks to the 7,500,000 marks capital of the company.

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Industry Briefs

The American Bemberg Corp. in its financial report for 1934 shows a net loss of $493,650, against a net profit of $510,946 last year, the drop being attributed in part to the costly textile strike of last fall.

Tested merchandise was the keynote theme of a luncheon given to 100 stylists and the trade press by the Viscose Co. in New York last month. Speakers, who included Paul Hollister, of R. H. Macy & Co., Inc., New York, and John O. Spooner, of the Viscose Co., emphasized the increasing demand by consumers for guaranteed merchandise.

Rayon Steals the Show!—Rayon yarns and finished merchandise dominated the textile exhibits at the Industrial Arts Exhibition, which opened in the Rockefeller Center Forum, New York, April 16; the exhibit concludes May 15. Textile firms represented included Sidney Blumenthal & Co., Tennessee Eastman Corp., Augusta Knitting Corp., United Piece Dye Works, Celanese Corp. of America and Stehli Silks Corp.

A sales training booklet, "How to Sell More Rayon," has been prepared by the Viscose Co. and is being distributed to stores for training departments. Instruction is given for promoting rayon merchandise of all kinds.

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Rayon Mill News

Industrial Rayon Corp., Cleveland, Ohio, has let general contract to George A. Rutherford Co., 2725 Prospect Ave., for improvements and alterations in mill on Walford Ave. Cost about $25,000.

Du Pont Rayon Co., New York, N. Y., has started operations in portion of its new mill addition at Ampthill, Richmond, Va., in course of construction for a number of months. A large working force will be employed in the spinning department.

Canadian Celanese, Ltd., Montreal, Canada, reports for the first quarter of 1935 net profits $40,000 higher than for the same period last year. This was achieved in face of power prices.

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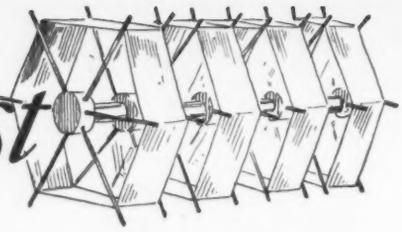
TEXTILE WORLD'S

Silk Digest



AMAZING shifts in competitive relationships among fibers have represented one of the most dramatic features of the textile industry during recent years. And in these shifts, silk usually plays a rather tragic part. Just as one example, may be cited the inroads made by cotton neckties last summer. This year, we learn that one of the causes for the poor spring season in broadsilks was increased demand for summerweight woolens.

As welcome relief, therefore, is the news that silk threatens wool with an all-silk tuxedo! Even if it never amounts to anything, in volume, it represents a noble fighting gesture on the part of a fiber hard set by its enemies.—*Editor.*

Hearing May 21 on Silk-Rayon Wages

Prospects for a complete official airing of the triple-sided wage controversy between weavers of silk, rayon and cotton fabrics, strengthened considerably at the end of April, when the National Industrial Recovery Board announced that a hearing would be held May 21, on request of the Silk Textile Code Authority to permit certain changes in that industry's code. This announcement was the climax to agitation which has been carried on for several months. The issue hinges on the contention of the Silk Textile Code Authority that wage provisions of that code are unfair to firms making rayon fabrics, since another branch of the rayon fabric industry operates under the cotton code, which permits lower wages. Peter Van Horn, chairman of the Silk Code Authority, filed a request that the labor provisions of the silk code be changed to make them identical with those of the cotton code, and his request is the subject of the May 21 hearing.

Resentment among rayon weavers operating under the silk code has been growing steadily during the last year. When it was announced that President Roosevelt had named a committee to study the cotton textile industry's problems, Mr. Van Horn requested that this committee include silk textiles in its investigation. No decision was made on this request, but it is now assumed the hearing will take precedence, as it will doubtless develop important material bearing on the same question.

The coming of May brought two important developments: Coincident with filing of proposed code amendments by the Silk Textile Code Authority, the Labor Advisory Board submitted its own proposed changes, including a new $15.00 to $33.00 wage scale. Peter Van Horn on May 8 told the Cabinet Committee investigating cotton textiles that one all-inclusive textile code was the real solution of the overlapping code and competition problems now facing the various branches of the industry.

A 30-hour week headed a list of amendments which the United Textile Workers submitted to N.I.R.B. for consideration at the meeting.

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Silk Defies Lull

Importers were disposed at the opening of May to commend raw silk for its good behavior during the preceding month. Despite the fact that the bottom has completely fallen out of demand, there was very little pressure to sell, and prices held their own throughout April. Indeed, they did better—the crack double extra 13/15 white 78% rose from $1.34 on March 29 to $1.39 on April 29, a gain of 5c. The primary market seems satisfied for the moment to play a waiting game. Occasional orders for yellow 22s were being placed at the end of April, and also there was some call for other grades; firms making satins for fall were placing limited business. However, that represented the total activity. Hosiery as one importer very bluntly put it was "dead"; these knitters gave no indications as to when they would be buying silk, but the general feeling was that they would be obliged to recoup their stocks at the end of May. Weavers were equally deaf to sales appeals.

Importers do not look for any change until the cocoon openings at the beginning of June.

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Cheney Bros. Asks 77-b Reorganization

An application for permission to reorganize under Section 77-b of the National Bankruptcy Act, was filed April 2 by Cheney Bros., long one of the leading silk manufacturing companies of the country. The petition was filed in the Federal Court, New Haven, Conn.; the Cheney mills are at South Manchester, Conn. Judge E. S. Thomas authorized the company to continue in business without the appointment of a receiver or trustee. A hearing on the reorganization petition will be held later this month.

The filing of the petition occasioned much surprise in broadsilk circles. Like numerous other old-established firms, Cheney Bros. had been hard hit by the depression, but was believed to have weathered the storm. In credit circles the thought was expressed that interest due on a $2,800,000 bond issue was a factor in the action.

Ward Cheney, president of the company, in a statement, said that much progress had been made to adapt the company to existing conditons, but that there remained certain burdensome charges which could no longer be carried. He said he believed this difficulty would be met by a reorganization plan.

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"Worst" Fabric Season Ends

The opening of May found broadsilk manufacturers at the end of what key executives declared was "the worst spring season in memory." These factors said spring had been a total loss for the larger part of the trade, and that now all they could do was to clear out their remainders and hope for a better fall season. The collapse of the spring season in broadsilks was attributed to various factors—hesitancy due to approaching expiration of NRA, increased demand for summerweight woolens, and the new blouse style. In case of the blouse style, this has helped blouse fabrics, but it has seriously hurt the dress trade, as fashion prescribes a woolen skirt to be worn with the silk blouse.

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Canadian Inquiry Assails Silk Mills

Canadian silk companies, including some which are U.S.-controlled, are rebuked as having shown "callous disregard for decency" in their wage scales, in a report of the Royal Commission on Mass Buying, a Dominion investigating body, which was submitted to the House of Commons at Ottawa last month. The report followed a study of all textile divisions; most textile branches, with the exception of silk, were found by the report to be in fairly good condition. Competition in the cotton branch was "imperfect"; woolen mills generally were in line with the average, though a few paid "exceedingly low" wages; rayon firms had "relatively good records."

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Prices Controllable, Ishiguro Holds

Dissenting from the oft-expressed belief that raw silks, being a natural product, cannot be controlled as regards market fluctuations, T. Ishiguro, who is general manager of the Japanese Government Raw Silk Intelligence Bureau, holds that the course of silk prices can be dictated to a degree through adjustment of certain factors which affect silk levels. Mr. Ishiguro voiced this view at a dinner given to trade leaders by the

Bureau in New York recently. His statement excited considerable discussion in the market. He did not put forth a fully-developed plan for silk price control, so the trade is not yet clear as to the basis for his conclusions. However, the main point he made—that the old idea of silk prices being uncontrollable was fallacious—has evoked numerous expressions of approval. Mr. Ishiguro said progress in this direction would depend largely on two movements now pending in Japan for the control, respectively, of cocoon marketing and raw silk selling.

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All-Silk Tuxedo Is Here!

Frankly skeptical, yet none-the-less curious, silk manufacturers in New York were awaiting with much interest the consumer reaction to the new all-silk tuxedo suit for men, which has just been introduced by smart stores in Washington, D. C. The suit is made of a very heavy weave and sells for $30 to $35. It is designed, of course, for summer wear.

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Paterson Paragraphs

Tributes were paid to Benjamin Kaminsky, president of the Silk Manufacturers Association of Paterson, by various speakers at a dinner attended by 250 silk manufacturers at the Alexander Hamilton Hotel last month. Prentiss L. Coonley, deputy administrator for the NRA, spoke on the competitive problems of the silk-rayon-cotton code mix-up.

Irate unionists are hot on the trail of Mayor Hinchcliffe, who they say failed to properly disavow the charges made by his silk strike investigating committee that labor leaders took graft from manufacturers in the recent strike. Mayor Hinchcliffe has repudiated the report, but the union men want a complete investigation.

Deadlocked—Efforts to draft a new contract between the Master Weavers Institute, representing jacquard manufacturers, and the local branch of the American Federation of Silk Workers, are deadlocked over the closed shop issue. The contract expired March 31, and workers are still under the old terms.

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Industry Notes

Would buy surplus throwing plants—A plan for the lease or purchase of surplus throwing plants to solve the present weak state of the market were discussed at a meeting of the Throwsters' Research Institute held April 27 in New York. Funds would be raised by tax on payrolls. Nearly 1,000,000 spindles were represented at the meeting; action was deferred.

Abandonment of the popular-priced market because "it is not worth the effort" is announced by the R & H Simon Corp.; this firm will continue to specialize in tie silks, velvets, and linings for men's coats.

Collins & Aikman Corp. reports a net profit for the 53-week period ended March 2, 1935, of $270,789, against a net profit of $1,294,493 in the year ended Feb. 24, 1934.

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"Stopping the Leaks," a leaflet describing how large savings are effected for silk manufacturers through the theft prevention work of the National Federation of Textiles, Inc., has just been issued by that organization. This work is in charge of the Federation's Road Patrol and Missing Property Bureau.

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NRA Briefs

Protest against the action of the Appeals Board of the National Industrial Recovery Board, in permitting three-shift loom operation at the mills of the Jaunty Silk Co., Paterson, N. J., was expressed both by the Silk Manufacturers Association of Paterson and the National Federation of Textiles, Inc. The Federation has asked for a new hearing on the case.

The Silk Textile Code Authority has submitted to NIRB an amendment to the code which would make Saturday closing of salesrooms and stockrooms compulsory.

Legalization of NRA legislation through constitutional amendment "as quickly as possible" is urged by the Throwsters Research Institute and the code authority of that industry in a statement recently issued.

Heated criticism of the Silk Textile Code Authority for publishing names of small converters, alleged violators of the silk code, was heard among converters at the end of April. Certain leading converters said the policy persecuted the small converter and they blamed the situation on the inequable enforcement of interlocking codes.

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Silk Mill News

Rossie Silk Throwing Mill, Noank, Conn., was sold by the Rossie Velvet Co. to A. W. Baylis, New York.

Belding Heminway Co., Putnam, Conn., reports for the first quarter of 1935 a net profit of $165,094, equivalent to 35c. a share; net for similar 1934 period was $159,087, or 34c. a share.

Hattiesburg, Miss.—Construction work on the silk mill building started April 1. Funds were subscribed by Hattiesburg business men. When completed it will be occupied by the Domestic Silks, Inc., of New York. Oden & Glenn hold the contract for construction. W. S. F. Tatum is chairman of building committee.

Henry Doherty Silk Co., Clifton, N. J., recently organized, has arranged for a loan of $500,000 from RFC, about $300,000 of which is being used to purchase mill of former company of similar name, on Main Ave., acquired about a year ago at foreclosure proceedings by the Veeanday Corp., New York., N. Y. Plant will be developed at once for silk production. About $200,000 of loan will be used for working capital of new concern, which is headed by Henry Doherty, Jr., and brother, Raymond Doherty, president and vice-president, respectively.

Newton, N. J.—A local campaign is in progress to raise a fund of about $15,000 to construct a mill on tract of land offered by Claude E. Mazuy, president, Newton Trust Co., to be occupied for silk manufacture. Negotiations are under way for a return of the **Newton Silk Co.,** Alphonse Van Houten, treasurer, as occupant of the proposed new mill. Last noted company had a plant on Sparta Ave., until last fall, when lease expired and operations were discontinued.

Irmac Silk Co., Paterson, N. J., has been organized by Irving H. Bogeinsky, Paterson, and associates, with capital of $10,000, to operate a silk mill in that city.

Pincus Bros. & Sheck, Inc., Paterson, N. J., have been chartered with capital of $125,000, to manufacture broad silks. New organization will take over company heretofore operated as Pincus Bros. & Sheck, with mill at 27 Kentucky Ave. David Pincus is principal incorporator and will head the operation of the new company.

Southern Silk Mills, Inc., Kernersville, N. C., will enlarge its plant at a cost of $25,000, and will combine there all of its manufacturing operations and executive offices. The addition is expected to be completed by August 1. It is 60x90 feet.

H. R. Mallinson & Co., Inc., Erie, Pa., have leased their local mill, comprising three multi-story units, totaling about 100,000 sq.ft. floor space, to the Hookless Fastener Co., Meadville, Pa., which will equip and occupy for another line of production.

Windsor Silk Mills commenced operations recently in Huntingdon, Que., in the Borden plant. It is hoped to have 100 looms in operation on silk broadgoods. N. Kluger, vice-president and general manager of the company, is in charge of the Canadian branch.

TEXTILE WORLD'S

Knit Goods Digest

IT was a thrilling week in Philadelphia. . . . . A good exhibition, well displayed and well attended. . . . . Constructive conventions, also well attended. . . . . Some frank talks, as for example John Brine's on prices and Sherman Haight's on need for new products. . . . . Reports of excellent associational activities; examples are Underwear Institute's statistical work, and Hosiery Association's raw silk committee. . . . . Evidence of greater solidarity among branches of the knitting industry than ever before. . . . . Made-to-order weather.

Despite all the depressing textile news on the front pages of newspapers during the week, these branches—at least—gave indication of surviving.—*Editor.*

Trade Votes Convention Week a Success

"Well worth while" was the general verdict of knit goods manufacturers, when they returned to offices and mills after a busy week at the Knitting Arts Exhibition and the two conventions at Philadelphia. One advantage noted by the trade was the helpful exchange of ideas on merchandising and manufacturing between the underwear and the hosiery knitters, which was a direct result of the dual meeting program. Another benefit was that all returned home with a clearer outlook resulting from the broad analyses made of the NRA at the meeting.

There is little question in the market this month but that the uncertainty regarding what's going to happen to the NRA after June 16, has had a depressing effect on sales of late weeks. Assuredly —and logically—it has depressed future orders. However, manufacturers now believe that this uncertainty will be short-lived, in view of the general conviction that Congress will extend the life of the NRA with modifications.

•

Ringless Mix-Up May Last for Years

With the development of ringless seamless hosiery as a new and live issue, the ringless hosiery situation became more complicated than ever this month. To add to the troublous outlook, one spokesman for the Textile Patents Corp. was quoted as saying the litigation probably would not be definitely cleared up for several years.

Bewilderment among buyers due to loose use of the word "ringless" was clarified April 15 by Earl Constantine, managing director of the National Association of Hosiery Manufacturers, who pointed out that the three-carrier was not restricted to any one type and therefore both full-fashioned and seamless sockings could be called ringless if made on the three-carrier equipment. However, he took exception to calling rayon hosiery ringless since such hosiery never did have rings.

Berkshire Knitting Mills, and the other firms named in the suit filed by Rosedale Knitting Co., filed denial of Rosedale's charges alleging violation of the anti-trust laws. Meanwhile, the list of mills which have made peace with the Textile Patents Corp. continues to grow. It was announced April 18 that 120 companies were now licensed under the patents to make ringless hosiery. Mills obtaining licenses after April 10 agreed to pay 10c. per dozen royalty.

•

Endorse NRA? Maybe!

A demand that, if the NRA is to be extended, the hosiery code could be modified to give more adequate representation to the smaller mills was voiced by various speakers at a meeting of the Southern Hosiery Manufacturers Association, held April 15, at Hickory, N. C. R. O. Huffman, of Morgan, N.C., president of the association, presided. The meeting was devoted almost entirely to the question of the code; manufacturers charged that, as now framed, the hosiery code helps the large mills at the expense of the smaller companies. The same topic was discussed by the Chattanooga branch of the association at a meeting several days previous.

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Winter Underwear Shortage Forecast

The possibility that fall might bring a shortage and rising prices in winter-weight underwear received support from several sources at the opening of May. Roy A. Cheney, managing director of the Underwear Institute, issued a statement May 1 in which he pointed out that production was backward because 40% of the flatlock machines in this division were engaged in making the popular new trunk shorts. Mr. Cheney added that orders are considerably behind, less than 20% of normal volume having been placed so far, and he emphasized that the present low production of fall-weight merchandise would probably mean a shortage resulting in increased prices.

Several leading companies opened their fall underwear lines at the end of April and the prices were the same as last year in most cases. Buying was exceptionally active in the first days, and there was talk of a price advance later.

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Hosiery Prices Weaken

A considerable weakening of hosiery prices, bringing sometimes a drop of as much as 10%, was manifest early this month. Leading mills did not show sufficient resistance as to offset the drop; trade factors attributed the decline to light Easter buying and overproduction.

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A Significant Move

Code Authorities in the various knit goods divisions are watching with interest the operations of the new inter-code committee, comprising Harold R. Lhowe, of the Knitted Outerwear Code Authority, and Max Meyer, of the Millinery Code Authority, which has been formed to try to solve jurisdictional controversies between industries. Although the scope of the committee is limited, it is regarded as a significant experiment which may help toward a permanent solution of the inter-code conflict.

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Hosiery Shipments Show Slight Rise

Hosiery shipments in February, 1935, showed a moderate rise over those of January, 1935, and were considerably above those of February, 1934, according to figures issued by the Hosiery Code Authority. Comparative statistics, doz. pairs, for the two years follow:

	Production	Shipments
Feb. 1935	9,214,361	8,731,958
Jan. 1935	9,996,108	8,587,765
Feb. 1934	9,092,247	8,241,736
Jan. 1934	7,301,522	6,819,604

Comparative data, in doz., by the Department of Commerce follow:

	Knit	*Shipments*	*Stock, end of month*
Hosiery			
Feb. 1935.	7,047,824	6,747,710	14,007,365
Jan. 1935.	7,564,519	6,502,253	13,526,940
Underwear			
Feb. 1935.	1,525,262	1,502,022	3,055,514
Jan. 1935.	1,502,216	1,442,302	3,032,274

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Late Entries at Knitting Arts Show

The following were last-minute additions to the exhibitors at the Knitting Arts Exhibition last month. This list supplements the Knitting Arts Exhibition Guide in April TEXTILE WORLD:

Hygrolit Inc., Kearny, N. J.; Philadelphia Textile School, Philadelphia; Queens Machine Co., Brooklyn N. Y.; National Association of Hosiery Manufacturers, New York, office and import competition exhibit, research and silk exhibit; National Bundle Tyer Co., Blissfield, Mich.; Chas. Reitzes; Robaczynski Machine Corp., Brooklyn, N. Y.; Rose Mills, Inc., Philadelphia; Scovill Mfg. Co., Waterbury, Conn.; Sellers Mfg. Co., Saxapahaw, N. C.; A. M. Smyre Mfg. Co. Gastonia, N. C.; Stecher-Traung Lithograph Corp., Rochester, N. Y.; Underwear Institute, New York; U. S. Ring Traveler Co., Providence, R. I.; S. Walter, Inc.; Whiting Patterson Co., Inc., Philadelphia.

Stelos Loses Appeal

The United States Supreme Court on April 29, ruled against the Stelos Co., Inc., in that firm's action against the Hosiery Motor Mend Corp. for alleged infringement of a patent. The case had been carried to the highest tribunal from the Circuit Court of Appeals which had held that no infringement was proven. When the case was before the Supreme Court a girl operated the mending device and showed the Justices how to repair runs in a silk stocking. The jurists manifested keen interest in the demonstration.

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Golf Tourney June 25

The fourteenth annual golf tournament at which the Chicago Yarn Men's Circle plays host to the executives of hosiery and underwear mills of the middlewest will be held Tuesday, June 25, at the Bob-o-Link Country Club, Highland Park, Ill. The Chicago Yarn Men's Circle comprises the following: President, Charles Peffer; treasurer, C. M. Patterson; secretary, C. Walter Seidel, and James A. Holt, Arnold Henderson, Arthur Emerson, William Yates, O. J. Caron, Oscar Heineman, Frank Kingsley, George Hutchinson, Fred W. Frank and William Benson.

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Industry Notes

Enter the Barrel Sweater! New York outerwear jobbers report increasing interest in a new sweater garment, known as the "barrel sweater." This is a sleeveless style shaped like a barrel, and it has enjoyed such an active call as to excite trade curiosity. Will it prove a comer?

Lang Re-elected — George F. Lang was re-elected president of the Full-Fashioned Hosiery Manufacturers of America at the body's annual meeting held April 25, at the Bellevue-Stratford Hotel, Philadelphia. Other officers also were re-elected.

Strong endorsement of the NRA and a demand that it be continued after June 16, have been expressed by the National Knitted Outerwear Association. This body hails the NRA as a "friend of the little man" and cites the improvement in outerwear trade conditions as one of its chief benefits.

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Knitting Mill News

New Knit Mfg. Co., Lowell, Mass., has been chartered with capital of $100,000, to operate a local knitting mill. Philip Kaplan is president of new company, and Joseph L. Kaplan, Lawrence and Andrews Sts., Lowell, treasurer and representative.

Essrow Knitting Mills, 52 Franklin St., Jersey City, N. J., have leased space in building at 232-46 Central Ave., and will occupy for new plant. Present mill will be removed to new location and increased capacity arranged.

Thomas N. White, Oswego, N. Y., has leased the plant of Oswego Underwear Corp. in liquidation and is producing men's knit shorts.

Bogart-Alabama Knitting Mills, Inc., West Haverstraw, N. Y., have been organized with capital of $50,000, to operate a local mill. Property is being leased and operations will begin soon. Incorporators of the new company include Abraham Lubatkin, Haverstraw, N. Y., and Samuel Alpert, SpringValley, N. Y.

Standard Hosiery Mills, Alamance, N. C., are installing 60 new-type seamless hosiery knitting machines at a cost of about $70,000.

Wiscasset Mills Co., Albemarle, N. C., has contracted for 25 new 45- and 48-gage, full-fashioned hosiery machines, bringing total equipment to approximately 180 machines.

Fidelity Hosiery Mills Co., Newton, N. C.—Mill of this company, in receivership, and portion of machinery have been acquired at a receiver's sale by Adrian L. Shuford, president and treasurer of the Conover (N. C.) Knitting Co. New owner will use property, it is said, for a branch mill. Fred Guerrant, formerly superintendent of the mill, purchased a portion of the machinery, which he has moved to Statesville, N. C.

Stanfield (N. C.) **Hosiery Mills, Inc.,** recently chartered by W. H. Love and Brooks Jerome, Stanfield, with capital of $100,000, will begin immediate construction of new mill on local site, consisting of three units, each one-story, 25x75 ft., and two 30x40 ft., respectively, with one-story boiler house, 20x30 ft. It is proposed to have mill ready for service early in the summer. It will cost close to $50,000, with equipment. About 22 machines will be installed to operate chiefly on men's work hose and misses' anklets.

Wallace Wilson Hosiery Co., Frankford, Pa., has been purchased by Martin M. Pearlman, for some time associated with the Ajax Hosiery Mills, Phoenixville, Pa., which company will take the product in the gray. The plant comprises 24 machines of 42 gauge and will be known as the Superior Hosiery Mill.

Monessen, Pa.—The local Chamber of Commerce is active in a project for establishment of a rayon knitting mill in Monessen. Mill property is being selected. Company name is being temporarily withheld.

Coane Knitting Mills Co., Philadelphia, Pa., knitwear, have moved from 1005 Filbert St. to a new location in the Manufacturers Exchange Building, 232 North Eleventh St., where they have greatly increased facilities.

Danita Hosiery Mills have added 24,000 sq.ft. to their Philadelphia plant at Indiana and A. Aves., part to be occupied by machinery and part by executive offices, transferred from Cheltenham, Pa.

Manitowoc (Wis.) **Knitting Mills** are planning early call for bids on general contract for new one-story addition, 26x34 ft., with extension, 20x26 ft.

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PROGRESS!

Gantner & Mattern Co., San Francisco, is responsible for the above interesting contrast between the bathing suit of the 90s, and their own "free-breathing Wikies," the bathing trunk line introduced last year and now recording advance sales more than double those of 1934. The Gantner & Mattern statistician says that the garment of the 90s weighed 19 lbs. when wet!

TEXTILE WORLD'S

Processing Digest

ELSEWHERE in this section we are reproducing a chart issued by the National Association of Finishers of Textile Fabrics which shows the "surplus capacity" of printing-machine hours available during 1934. Study of this chart reveals a number of interesting facts, which can be boiled down to this: Based on an 80-hour machine week, there are 172 surplus machines, or 35% of the total number in place in cotton print works. The destructive effects of this grossly excessive productive capacity are only too well known.

The association in January proposed a plan which promised a possible way out of the situation. This plan called for the purchase or regulation of a "reasonable number" of existing machines out of funds to be raised by an assessment of not more than ¼c. per yard of goods printed.

Up to now this plan has received only lukewarm support by individual companies. In the absence of a better suggestion, which has yet to be put forth, it merits a fair trial and a wholehearted attempt on the part of the cotton finishers to make it a success.—*Editor.*

Identification of Rayon

For the identification of various types of synthetic yarns, a revised method was proposed by sub-committee A2, of Committee D13, American Society for Testing Materials, at the meeting held at Providence in March. The new method —which is intended for rayon which is substantially free from color, oil, finish, or other foregin substances—is, in brief, as follows:

Preparation of sample. If any foreign substances are present, remove them by digesting successively with the following solvents: Distilled water at 70° to 80°C. for 15 min., denatured alcohol at room temperature for 5 min., diethyl ether at room temperature for 5 min. Wring out the excess of one solvent before transferring to the next solvent. Finally allow the sample to dry at room temperature.

Physical tests. If sufficient sample is available, determine the denier and the filament count. Compare these values with the various numbers offered for sale commercially by the different producing rayon companies. Occasionally as in the case of very fine denier, this will definitely determine the type of rayon. At other times, it merely limits the number of possibilities and on occasion is of no assistance.

Twist a few strands of the sample and bring the mass as close as possible to a flame without permitting it to burn. Cellulose acetate is thermoplastic and will soften or melt, depending on the temperature. In the latter case it forms a hard ball. Cuprammonium and viscose do not fuse when heated.

Chemical examination. (a) Treat a few strands of the sample with C.P. acetone; cellulose acetate dissolves. (b) Treat a few strands of the sample with a boiling solution of acetic acid (40 g. glacial acid with 60 g. distilled water); cellulose acetate dissolves.

To identify viscose. If the sample is not cellulose acetate, make the following tests: Place a 5-g. sample of the rayon to be tested in a 250-c.c. Erlenmeyer flask, together with 100 c.c. of water and 3 c.c. of concentrated sulphuric acid. Completely cover the mouth of the flask with a piece of lead acetate paper, fastening the paper securely in postion and allow to stand at a temperature of 90° to 95° C. for 4 hours. Viscose stains the lead acetate paper yellowish to brown or possibly black. Cuprammonium does not discolor the paper.

To identify cuprammonium by stain tests. Four different tests are offered because no one stain test can be relied upon in every case. (1) Wright stain test—Immerse an air-dry sample in a boiling saturated alcoholic solution of Wright stain for a few seconds, rinse thoroughly in cold water. Viscose is stained blue; cuprammonium is stained violet. (2) Erie Fast Orange —Dye the sample in a 0.2% solution of Erie Fast Orange CG (Color Index No. 621). Viscose is white to weak orange; cuprammonium is dyed deep orange. (3) Neocarmin W—Immerse a small sample of the yarn for 3 to 5 min. in a solution of Neccarmin W (Eimer & Amend). Rinse in running water, pass quickly through water containing a trace of ammonia, rinse well and dry. Viscose is dyed violet; cuprammonium is dyed blue. (4) Diphenyl Fast Green. Immerse a small sample in a 1% solution of Diphenyl Fast Green B (Geigy Co.) for 2 min. at 20° C. Add glauber salt. Remove, rinse, and dry. Cuprammonium is dyed green; viscose is undyed.

If previous tests indicate that sample is not viscose or acetate, it may be presumed that it is cuprammonium, but this should be checked by physical and optical methods.

Optical tests. When possible, a microscopic examination of the lateral surface and cross-section of the sample should be made, particularly in the case of cuprammonium and viscose.

Examination of the lateral surface. Clean the microscope slide by flaming or with solvent, place on this a few filaments from the unknown sample and add a dron of the mounting medium (methylene iodide or monobrom napthalene) to the filaments on the slide. Place a cover glass over the yarn and liquid, pressing them down until the mounting medium wets the whole of the underside of the cover glass. Place the slide on the microscope stage; adjust the light; and focus, using first a 16-m.m. and then a 4-m.m. objective with a 10X eyepiece. Compare the samples with the series of standard plates issued by Committee D13. Viscose can be readily distinguished from cuprammonium by the many fine striations parallel with the axis of the filaments. Cuprammonium is unstriated.

Cross-sectional examination. Prepare a thin cross-section of the sample by twisting several strands together and embedding them in wax or in a cork or in a Schwarz sectioning plate. Cut a thin section by means of a microtome or a sharp safety razor blade. Mount the sample on microscope slide and if wax has been used, remove this by dissolving with xylene. Focus as described above and compare the image with the series of standard cross-section plates issued by Committee D13. Viscose has an irregular edge, cuprammonium is almost round and has a serrated edge.

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Chemical Industry Medal Award

The American Section of the Society of Chemical Industry announces that the award of the Chemical Industry Medal for 1935 has been made to Dr. Edward R. Weidlein, director of the Mellon Institute of Research, Pittsburgh, Pa. This award is made annually to a person who has made a valuable application of chemical research to industry, primary consideration being given to applications in the public interest. Presentation of the medal will be made at a meeting of the society in the fall.

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Formulate Plans for Chemical Exposition

The 15th Exposition of Chemical Industries will be held at Grand Central Palace, New York, December 2 to 7, 1935. According to advance indications, the 1935 Exposition will be one of the largest in recent years, and the volume of requests for space makes necessary the early preparations which are being made for this year's show. Covering the broad fields of raw materials, machinery, and finished products, the exhibits will include chemicals and chemical products, metals and alloys, laboratory equipment and supplies, precision instruments, containers and packaging, materials-handling equipment, brewing, distilling and bottling equipment, industrial chemical equipment and machinery.

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"Rayonized" Cotton Fabrics

Development of a new process for imparting a "rayonized" effect to cotton fabrics is announced by William H. Furness, president, American Rayon Co. Joseph Bancroft & Sons Co., Wilmington, Del., has acquired exclusive rights to use the process on woven cotton fabrics and is bringing out a line of fabrics so treated under the brand name "Permanese." Advantages cited for the process are that it imparts a permanent, deep-set, lustrous sheerness to the goods; gives an increased toughness, tensile strength and durability to the cloth; and permits creases in voiles or other lightweight materials to be removed easily by shaking the fabric or, in the case of a garment, by hanging it in a closet. The treatment is said to be applicable also to cotton knit goods. It is stated in addition that the solution used in the process can be employed for treating cotton fibers to imitate spun rayon.

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Association Notes

Southeastern Section of the American Association of Textile Chemists and Colorists met April 27 at Auburn, Ala. Dr. L. N. Duncan, president of Alabama Polytechnic Institute, made an address

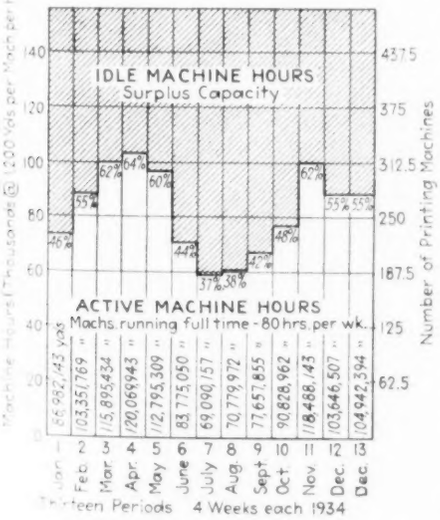
of welcome, after which J. W. Stallings, manager of the Charlotte (N. C.) laboratory of Stein, Hall & Co., spoke on "Starches and Their Textile Application," and R. V. Irwin, International Salt Co., Charlotte, discussed "The Application of Salt Brine to Textile Processes." C. A. Jones, Atlanta, Ga., is chairman of this division.

Piedmont Section, A.A.T.C.C., held its spring meeting at Greenville, S. C., May 4. An afternoon technical discussion was followed by a banquet. Papers presented included the following: "Textile Finishing Machinery and How to Take Care of It," by Hill Zahn, southern manager of H. W. Butterworth Co., Philadelphia; "Chemistry as Applied to a Textile Plant Instead of Textile Products," by Raphael E. Rupp, chief chemist, Pacific Mills, Lyman, S. C.; "Some New Developments in Vat Colors With New Methods for Printing and Dyeing," by A. E. Sampson, manager of Application Laboratories, Calco Chemical Co., Bound Brook, N. J. Paul G. Haddock, Charlotte, is chairman of this division.

Dr. Karl T. Steik, director of research, National Oil Products Co., spoke on "White Oils" at the April meeting of the New York Section of the American Association of Textile Chemists & Colorists, held in Paterson, N. J., April 26.

Edward Ball, of Calgon, Inc., spoke on "Textile Calgon," and C. Norris Rabold, of Corn Products Refining Co., spoke on "Some Characteristics of Corn Starch and Corn Gum as Related to Printing Thickeners" at the April meeting of the Rhode Island Section, A.A.T.C.C., held April 26, in Providence, R. I.

Charles Pinnell, president of Fred Butterfield & Co., was re-elected president of the Textile Color Card Association at its annual meeting April 18 in New York; 12 directors were elected, an increase of three. Mrs. Margaret Hayden Rorke, managing director, in her annual report said 156 new members had joined



Allowing 25% surplus capacity to absorb irregularities and to assure competition for the full amount of yardage offered, a surplus of 172 cotton printing machines or 35% of the total number in place is indicated by the above chart issued last month by the National Association of Finishers of Textile Fabrics. The chart shows also that total yardage printed in 1934 was 1,258,303,638; total active machine hours, 1,048,586; total available machine hours on basis of 80-hour week, 1,036,720; idle machine hours, 988,493.

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the association in the year; she also described the "color clinic" service recently inaugurated.

Textile chemists attending the meeting of the American Chemical Society, held in New York, last month were particularly interested in two papers by Frank M. Biffen and Foster D. Snell, on the "Analysis of Commercial Oil Emulsions" and "Suspensions and Analytical Properties of Sulphated Alcohols"; a discussion by Martin Wadewitz, of "Economic Problems in the Rayon Industry"; a paper by Gordon M. Kline, on "Fire-Resistant Doped Films for Aircraft"; and papers by Wayne A. Sisson, on "X-Ray Studies of Cellulose" and "Synthetic Fibers from Bacterial Cellulose Membranes."

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Industry Briefs

A precedent in labor litigation was believed to have been set April 26 in Paterson, N. J., when the local Court of Chancery enjoined Chairmont Piece Dye Works, Inc., and Stanley Silk Dyeing Co. from moving their plants or any machinery out of the city. The order was obtained by the Federation of Silk & Rayon Dyers & Finishers, which charged that such removal would be violation of contract.

Standard Bleachery & Printing Co., Carlton Hill, N. J., has advanced prices on developed and vat dyeing, increases ranging from ½ to 1¼c. depending on class of dye and shade.

Equal representation with employers on the Code Authority of the Silk and Rayon Dyeing and Printing Industry is asked by the Federation of Silk & Rayon Dyers & Finishers of America. The Federation expressed this attitude at a meeting in Paterson; it also favored that dyers of silks and rayon be removed from jurisdiction of the Cotton Textile Code and that they be placed under the Silk and Rayon Code.

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New Dyes and Chemicals

General Dyestuff Corp., New York, has recently announced four new dyes for cellulose acetate; namely, Celliton Fast Scarlet R, Celliton Fast Rubine 3B, Celliton Discharge Brown 5RL, and Celliton Discharge Scarlet RL. Other new General dyes include Chrysophenine 4A Extra; Benzo Fast Orange WSA, a direct dye for both cotton and rayon; Fastusol Orange LRA; Fastusol Orange L7GA, a direct dye of very good to excellent fastness to light; Diazo Brilliant Scarlet 2BLA Extra, giving bluish scarlet shades when diazotized and developed with Developer A; Anthralan Red GG, a homogeneous acid color giving yellower shades than Anthralan Red B; and Fast Garnet Salt GC, a 20% Fast Color Salt of Fast Garnet GC Base.

Niacet Chemicals Corp., Niagara Falls, N. Y., announces the commercial production of sucrose octa acetate, the first of a series of derivatives utilizing cane sugar as an industrial raw material. This compound, which is the result of research at Mellon Institute, can be applied as a surface coating (usually in a suitable solvent) to textiles to yield a glossy, water-repellent surface. It is also recommended as an adhesive and as a plasticizer with cellulose acetate, nitrocellulose, various lacquers, etc. SOA, as the compound is called, is practically insoluble in water.

E. I. du Pont de Nemours & Co., Wilmington, Del., announces a new compound for imparting a water-repellent and spot-proof finish on all types of textiles. This product, which is known as Aridex WP, is said to give a permanent water-repellent effect, being resistant to laundering and dry cleaning.

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Finishing Plant News

Crystal Spring Bleaching & Dyeing Co., Thwaites, Mass.—The Town of Freetown has taken title to mill of this company, idle for some time, following a decree by the Land Court foreclosing on a collector's deed. The property will be placed on the market.

Strengs Piece Dye Works, Paterson, N. J., has been placed in the hands of G. R. Riches, L. E. Eberhard and Jean Strengs as equity receivers.

North Carolina Finishing Co., Salisbury, N. C., has awarded general contract to Potter & Shackelford, Greenville, S. C., for new one-story addition. J. E. Sirrine & Co. are the engineers.

B. B. & R. Knight Corp., Providence, R. I., sustained a fire loss recently at branch mill at Pontiac, R. I., where a portion of bleachery was destroyed with loss of about $25,000.

Rock Hill (S. C.) **Printing & Finishing Co.** is proceeding with work on new one-story addition, for which general contract has been awarded to the A. K. Adams Co., Atlanta, Ga., estimated to cost about $25,000. Robert & Co., Atlanta, are engineers.

TEXTILE WORLD'S

Engineering Digest

AN article entitled "When Daylight Leaves," published in the December, 1934, TEXTILE WORLD, was unique in that it offered concrete data on the exact effect of improved lighting on weaving production and fabric quality. Such information is all too scarce; and at the meeting of the textile division of the American Society of Mechanical Engineers in Greenville last month, L. W. Burdette, of J. E. Sirrine & Co., proposed that a committee of representatives from various technical associations in the textile field be established to conduct a careful investigation of the effects of modern lighting systems on all the processes of the mill.

We hope that this excellent suggestion will strike a responsive chord in the Textile Foundation, U. S. Institute for Textile Research, A. S. M. E., or other organization having the facilities for sponsoring such a program.—*Editor.*

Insulating Against Loom Vibration

A vibration investigation to determine the effect of mounting looms on a cement floor with and without the use of felt has been conducted by Barss, Knobel & Young, Inc., engineers, for the Felters Co., Boston. The tests were conducted at the Crompton & Knowles Loom Works on a cotton and a silk loom.

Measurements were made with a Norton-Young portable seismograph of the vibrations transmitted to the cement floor at points adjacent to each leg of the loom, both without felt and with ¼-in. felt under the legs. As the looms were not tied down, only vertical vibration was measured.

Fig. 1 is a record of the vibration transmitted by the front pulley leg of a cotton loom operating at 176 picks per minute with felt insulation. Fig. 2 shows the vibration transmitted by the same loom without the use of felt. The percentage reduction on the front pulley leg was 65%, on the back pulley leg 85%, on the front head leg 60%, and on the back head leg the reduction was negligible. The largest transmitted vibrations were adjacent to the pulley legs. Similar results were obtained on a silk loom operating at 139 picks per minute.

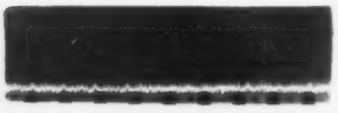

Fig. 1

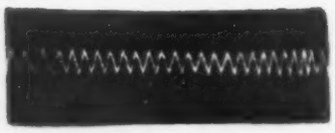

Fig. 2

In commercial application, where the looms are mounted on a cement floor the felt is cemented to the floor and to the leg, thus doing away with the necessity for boring holes, it is said. With a wood floor, the bolt is also insulated with felt washers to prevent the bolt from transmitting vibrations. The value of felt as an isolator, states the engineers' report, is not only as a shield to prevent transmission of vibration to the surroundings, but it has merit in cutting down dynamic bearing loads. When the loom is operated on a solid support vibration loads are added to the normal operating loads. With the loom on flexible pads, the supports of moving parts are not constrained and the dynamic vibration loading is greatly reduced.

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Laying a Power Cable

The problem was to lay a power cable between the weaving and finishing units of Interlaken Mills, Harris, R. I., which are 3,000 ft. apart. The company owned both sides of a pond and a canal connecting the plants and it was decided to lay the cable along the stream-bed, particularly since temperature is a factor in the capacity of a cable and the water would have a cooling effect.

Handling a three-conductor cable of 750,000 circular mils, weighing 20 lb. to the foot, presented difficulties. The plan adopted was to set up each of the three reels of cable at points along the shore. As the cable was unwound, barrels were attached every 8 ft. Supported by the barrels, the cable was floated out to the desired position, and then, as the barrels were knocked off, one by one, the cable sank to the stream-bed. To secure all the benefits of the water cooling, where the cable entered the plants at each end it was inclosed in a water conduit right up to the switchboards. Water flowing through the conduits keeps these sections of the cable at the same temperature as the submerged sections.

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A Few Pointers on Burning Fuel Oil

Writing in a recent issue of *Power*, A. G. Solomon cites several instances where a small leak in the oil coils of the pre-heater caused considerable damage. He suggests that one remedy is to pipe the condensate of the steam used for heating from the outlet of the trap to the sewer, instead of into the return of the heating system condensate. The outlet to the sewer, however, should be in sight of the fireman so that he can immediately detect any trace of oil caused by a leak in the coils. Mr. Solomon states that the boiler-room engineer should enforce the following operating precautions:

1. Be sure the floor of the furnace is smooth, free from cracks and low places. The floor should have a slight pitch toward a drain. This drain should not be piped to a sewer but arranged so any oil coming from the furnace can be plainly seen.

2. Keep the floor of the furnace clean. Do not allow carbon, soot or dirt to collect. Dirt will hold unburned oil and may cause a backfire.

3. Do not allow any leaking valves in the oil-burning system. As soon as a valve is known to leak, repair it.

4. When an oil fire is burning, some one should be within sound and reach of the burner. Something may happen to cause the fire to go out (a small amount of water passing through the burner, or a temporary blocking of the small openings of the burner, or the oil pressure dropping). If the fire goes out, unburned oil will enter the furnace, and there is real danger of explosion when this unburned oil and liberated gases become heated by the hot brickwork of the furnace. This danger is minimized if the fireman is right there to shut off the oil as soon as the fire goes out.

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International Heating and Ventilating Exposition

Announcement has been made that the Fourth International Heating and Ventilating Exposition will be held at the International Amphitheatre, Chicago, Jan. 27 to 31, 1936.

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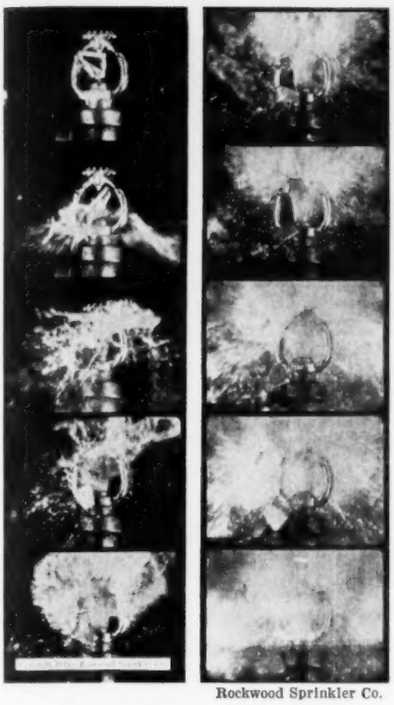
Turbines Are Different

It seems that what is one turbine's drink may be another turbine's poison. Business picked up in a southern mill and a new Moore turbine was installed, reports *Esso Oil-Ways*. The mill was using a good grade of oil in its old turbine and naturally used the same oil in the new outfit. Whereupon the Moore turbine started to burn up. Of course the engineer for Esso Marketeers re-



Rockwood Sprinkler Co.

Efficiency of the sprinkler head as a fire extinguishing device is recorded in these high speed movie shots—⅛ of a second after the heat struck the solder, water deluged downward in sufficient quantities to extinguish the fire. Views show "figure 4" solder-link melting and releasing water on fire at the rate of 45 gallons a minute. Starting in upper left corner and running down, then similarly in second columns the views are as follows:

1. Solder beginning to melt because of fire conditions.
2. Strut collapsing, allowing water to start.
3. One piece of strut shown just as released.
4. The "flat" shown in above illustration dropped about ½".
5. Water beginning to come in greater volume.
6. "Flat" turning but no lower than in previous picture.
7. Heavier top or "flat" caused this piece to turn further.
8. One other of the four pieces of the strut can be seen at the left of the frame.
9. Water increasing in volume.
10. Full discharge of water reached in time it has taken the "flat" piece to drop about 1 in.

ceived a frantic 'phone call. On arrival at the plant, he pointed out that turbines are temperamental and that an oil suited to the old turbine was entirely unsuited to the new unit. To give the story a happy ending, a heavier grade of oil soothed the fevered joints of the Moore turbine.

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High- or Low-Pressure Steam for Processing

Among the fallacies, in the opinion of P. W. Swain, editor of *Power*, is the following:

Fallacy: High-pressure steam is much better for process use because it contains a lot more heat.

The Facts: Measured above 32° F., the heat in one pound of steam at 100 lb. gage pressure is 1189 B.t.u. At 5 lb. gage pressure it is 1156 B.t.u. Assume, then, that operating conditions give a condensate temperature of 200° leaving the process. Then the heat given up by one pound of steam at 100 lb. gage pressure is 1021 B.t.u., while the corresponding figure for 5 lb. pressure is 988 B.t.u. The difference is only 3½%.

Many see this point, but overlook the fact that it is not particularly significant. For example, if the steam were supplied directly from a boiler in both cases, a lower process pressure would make no change in boiler fuel consumption one way or the other, because it would merely call for slightly more pounds of low-pressure steam with slightly fewer heat units per pound.

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Oil-Proof Cements

Two new rubber-like cements suitable for use in coating fabrics and other textile applications have been announced by Thiokol Corp., Trenton, N. J. These products upon evaporation of the solvent leave elastic films which are said to be oil-proof, unaffected by most solvents, and highly resistant to moisture, sunlight, and ozone. Thiokol cements can be used for coating, impregnation, binding, etc., and can be applied to cotton and wool goods, felt, and other textiles to make products impermeable to moisture and solvents.

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Engineering Trade News

Cleveland Crane & Engineering Co., Wickliffe, O., has moved its New York offices to 60 East 42nd St.

John Waldron Corp., New Brunswick, N. J., has announced that F. W. Thomas, formerly with Bartlett Hayward Co., has joined the organization as general manager of sales of the Francke coupling and silent-gear departments. As of July 15, the company will handle the sales of its products directly, rather than through Smith & Serrell, Newark.

Lawrence Machine & Pump Co., Lawrence, Mass., has been purchased by Victor J. Mill, of Baldwinsville, N. Y. Mr. Mill will continue to operate the plant under the name **Lawrence Machine & Pump Corp.**

Ajax Flexible Coupling Co., Westfield, N. Y., has announced that William T. Shaler, formerly with S. Howes Co., has joined the organization as engineer in charge of development of the Shaler Shaker, and that Clifford E. Broome, formerly with Gears & Forgings, Inc., has been made engineer in charge of the Lectrigear division.

Link-Belt Co., Chicago, has transferred R. Y. MacIntyre from the Memphis, Tenn., to the Dallas (Tex.) office.

George Rahmann & Co., New York, belting and leather specialties, celebrated its 40th anniversary on April 12 with a party in New York.

Lukens Steel Co., Coatesville, Pa., has appointed A. J. O'Leary as assistant to general manager of sales. Prior to joining Lukens in 1916, he was with the Pennsylvania Railroad and Alan Wood Steel Co.

General Electric Co., Schenectady, reports billings for the first quarter of 1935 as $40,393,538, an increase of 16% over $34,935,551 reported for the same quarter of 1934.

Electric Hoist Manufacturers Association has elected as its chairman, Carl O. Hedner of the Yale & Towne Mfg. Co., Philadelphia Division.

T. A. Canty, Baltimore Md., distributor of arc welding equipment and supplies manufactured by the Lincoln Electric Co., Cleveland, O., has moved from his former location at 116 East Center St. to much larger quarters at 1023 Cathedral St.

J. W. Littlefield, formerly a lubricating engineer with Gulf Oil Co., Greenville, S. C., has been appointed southern representative for Swan-Finch Oil Corp., New York. His headquarters will be with McCleod Co., Greenville, S. C.

Horace T. Potts Co., Philadelphia, has been appointed distributor of seamless stainless steel pipe in that territory by the Babcock & Wilcox Tube Co., and continues to distribute B&W seamless boiler tubes.

Crane Co., Chicago, announces that C. B. Nolte has been elected president, succeeding J. B. Berryman, who becomes chairman of the board. Mr. Nolte has been president and general manager of the Robert W. Hunt Co., consulting, testing and inspecting engineers.

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Engineering Mill News

West Point (Ga.) **Mfg. Co.'s** Riverdale (Ala.) plant has awarded contract for construction of a new community house in the mill village at Riverdale to the Batson-Cook Co., West Point. Robert & Co., Atlanta, are architects for the project.

Randolph Mills, Inc., No. 1, Franklinville, N. C., has recently raised the height of its mill dam across Deep River 30 in., making a large increase in its water power development. This makes a beautiful lake extending about a mile up the river.

Highland Park Mfg. Co., Charlotte, N. C., has begun repairing a number of village dwellings at a cost of around $1.970.

Peerless Woolen Mills, Lafayette, Ga., started work the middle of April on $50,000 community buildings for recreational and other entertainment features for their employees.

ADVERTISING PAGES REMOVED

QUOTATIONS

At close of business, May 1, 1935

Prices cover average qualities unless otherwise stated

Cotton Goods

	May 1	Apr. 1	1934 May 1
PRINT CLOTHS			
27-in., 64x60, 7.60	4¾	4 11/16	4⅝
38½-in., 64x60, 5.35	6¾	6¾	6⅝
39-in., 68x72, 4.75	7¼	7	7⅛
39-in., 72x76, 4.25	8¼	8¼	8⅛
39-in., 80x80, 4.00	8¾	8¾	8⅝
BROWN SHEETINGS			
36-in., 56x60, 4.00	7¼	7¼	7⅛
36-in., 48x48, 5.00	5¾	5¾	6½
37-in., 48x48, 4.00	7	7	6⅞
MISCELLANEOUS			
Drills, 37-in., 3 yd.	9¼	9¼	9½
Denims, 2.20	14½	13½	15½
Tickings, 8 oz.	17½	19	18
Standard prints	7	7	7½

*Tax included.

Cotton Waste

Peeler comber	14.25
Peeler strip	14.25
White spooler (single)	7.50
Linters (Mill Run Average)	6.00

Cotton Prices

Spot Cotton at:	May 1	Apr. 1	For Month High	For Month Low	1934 May 1
New York	12.15	11.30	12.25	11.20	10.75
New Orleans	12.15	11.30	12.50	12.25	10.85
Liverpool	6.80	6.34	6.80	6.32	5.85

FLUCTUATIONS OF FUTURES

	Closed May 1	For Month High	For Month Low	Closed Apr. 1	Net Change
May	11.75	11.85	10.91	11.00	+0.75
June	11.76	11.87	10.94	11.02	+0.74
July	11.76	11.89	10.97	11.04	+0.72
Aug	11.61	11.75	10.81	10.86	+0.75
Sept	11.47	11.62	10.65	10.68	+0.79
Oct	11.32	11.49	10.50	10.50	+0.82
Nov	11.36	11.52	10.51	10.49	+0.87
Dec	11.40	11.56	10.52	10.50	+0.90
Jan	11.45	11.59	10.54	10.55	+0.90

AVERAGE PRICE JUNE-JULY SHIPMENT HARD WESTERN COTTON

	F.o.b. New England Middling	St. Middling
1⅛-in	14.50	15.50
1 3/16-in	16.00	17.75
1¼-in	18.25	20.25

FOREIGN COTTONS

Alexandria Exchange, May 1	
May, Sak	14.43
June Uppers	12.97
Shipment c.i.f. Boston (Tariff not included)	
Medium Sak	24.00
Medium Uppers	23.25
(By Anderson, Clayton & Co.)	
India Rough, Calcutta Camilla	9.00
China Tientsin No. 1	13.50

Quotations on cotton cloth and cotton yarn as given on this page include the cotton processing tax. Cotton waste prices also include the processing tax but of course the prices on various raw cottons do not include it.

Cotton Yarn (Nominal)

(Tax Added)

CARDED (Average Quality)

Double Carded 2c—4c., higher according to quality

SINGLE SKEINS OF TUBES (Warp Twist)

4s to 8s	$0.26½	20s	$0.29½
10s	.27	24s	.31½
12s	.27½	26s	.32½
16s	.28½	30s	.33½

TWO-PLY SKEINS AND TUBES

8s-2	$0.27	20s-2	$0.30
10s-2	.27½	24s-2	.32
14s-2	.28½	30s-2	.35
16s-2	.29	40s-2	.41

SINGLE WARPS

10s	$0.27½	20s	$0.30
14s	.28½	24s	.32
16s	.29	30s	.35

TWO-PLY WARPS

8s-2	$0.27½	20s-2	$0.30½
102-2	.28	24s-2	.32½
14s-2	.29	30s-2	.35½
16s-2	.29½	40s-2 ordin.	.41½

HOSIERY CONES (Frame Spun)

8s	$0.27	18s	$0.29½
10s	.27½	20s	.30½
12s	.28	22s	.31½
14s	.28½	24s	.32½
16s	.29	26s	.33½

COMBED PEELER (Average Quality)
TWO-PLY—(Knitting Twist) Cones

20s-2	$0.36	50s-2	$0.49
30s-2	.40	60s-2	.55
40s-2	.46	80s-2	.75

WARPS, SKEINS AND CONES
TWO PLY—(Warp Twist)

20s-2	$0.36½	50s-2	$0.50
30s-2	.40½	60s-2	.56
36s-2	.44½	70s-2	.66
40s-2	.46½	80s-2	.76

SINGLES

14s	$0.33½	38s	$0.44
20s	.35	40s	.45
28s	.38½	50s	.50
30s	.39	60s	.56

MERCERIZED CONES—(Combed, Ungassed)

30s-2	$0.52	60s-2	$0.70
40s-2	.57	80s-2	.96

Raw Silk

Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Special Grand, 85%	1.65	1.42	1.33
Grand XX, 83%	1.54	1.38	1.32
Special Crack, 81%	1.43	1.36	1.31
Crack XX, 78%	1.40	1.34	1.29
Extra, Extra, 73%	1.38	1.32	1.27
Best Extra, 68%	1.36		

RAW SILK EXCHANGE

	May 1	Apr. 1	For Month High	For Month Low	Net Change
May	1.31	1.27	1.36	1.27	+0.04
June	1.31	1.26½	1.35½	1.26½	+0.04½
July	1.31	1.26½	1.35½	1.26½	+0.04½
Aug	1.30	1.26½	1.33½	1.26½	+0.03½
Sept	1.30	1.26	1.33½	1.26	+0.04
Oct	1.30	1.26	1.32½	1.26	+0.04
Nov	1.30	1.26	1.32½	1.26	+0.04

Silk Yarns

Hosiery tram 5thd. Japan, 85%	$2.27½
Hosiery tram, 5thd. crack XX, 78%	2.00
60/2 spun silk	2.75

RAYON WASTE

Thread (for garnetting)	$0.13½

Wool

OHIO, PENNSYLVANIA, ETC. (GREASE)

Fine delne	$0.26–$0.27	⅜ blood	$0.25½–$0.26
Fine clthg	.19–.20	¼ blood	.23–.23½
⅛ blood	.26½–.27		

TEXAS AND CALIFORNIA (CLEAN)

Texas, 12 months	$0.59–$0.61
California, Northern	.54–.56

MONTANA, IDAHO, WYOMING (CLEAN)

Staple fine	$0.64–$0.65
Staple ½ bld	.61–.63
Fine and fine medium (original bag)	.59–.61
¾ blood	.52–.54
½ blood	.48–.50

EASTERN SCOURED PULLINGS

A.A	$0.63–$0.65	B-Super	$0.53–$0.58
A-Super	.58–.60	C-Super	.50–.52

CARPET WOOL (Nominal)

Aleppo (clean)	$0.16–$0.19
Sining	.09–.13
China filling (clean)	.08–.13

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.83–$0.85
Half-blood (60-62s)	.78–.80
Aver. ¾ blood (56s)	.68–.70
½ blood (50s)	.57–.59

NEW YORK TOP FUTURES

	Closed May 1	For Month High	For Month Low	Closed Apr. 1
May	71.0	73.5	71.5	73.5
June	71.2	73.0	71.0	73.0
July	72.5	73.5	71.2	73.5
Aug	71.8	73.2	71.4	73.2
Sept	72.0	73.5	71.6	73.5

TOPS—BRADFORD, ENG. May 1

Fine (64s)	26 d
½ bld. (60s)	24½d
¾ bld. (56s)	18½d
¼ bld. (50s)	14¼d

NOILS—BOSTON

Fine	$0.48–$0.50	¾ bld	$0.41–$0.43
Half bld	.46–.48	¼ bld	.38–.42

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 44s	$0.90–$0.95	2-36s 58s	$1.22½–$1.25
2-30s 46s	.97½–1.02½	2-40s 60s	1.27½–1.30
2-30s mixes	1.30–1.35	2-50s 64s	1.40–1.45

ENGLISH SYSTEM KNITTING

2-20s 44s	$0.80–$0.85	2-20s 60s	$1.05–$1.10
2-20s 50s	.85–.90	2-20s 64s	1.10–1.15

FRENCH SYSTEM

1-26s 64s	$1.10–$1.15	2-40s 64s	
1-30s 64s		Zephyrs	$1.35–$1.40
warp	1.25–1.30	2-50s 66s	1.52½–1.57½

Domestic Rayon (Skeins)

VISCOSE PROCESS

Denier	Filament	Price	Denier	Filament	Price
50	14	$1.05	150	24–40	$0.55
75	30	.85	150	60	.57
100	40	.74	300	44	.47
125	36	.63			

ACETATE PROCESS

Denier	Price	Denier	Price
45	$1.10	100	$0.77½
55–65	1.05	120–125	.68–.73
75	.90	150	.60

CUPRAMMONIUM PROCESS (TWISTED)

Denier	Filament	Price	Denier	Filament	Price
30	24	$1.40	100	75	$0.79
75	60	.90	150	112	.60